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Paper Industry Looks for Higher Quotations

Anticipating Advance of Commodity Prices, Many Leading Paper Manufacturers Are Reluctant to Accept Orders for Future Delivery—Meetings of Trade Groups Show Spirit of Better Co-Operation Prevailing—Insist on Strict Observance of Trade Customs—Paper Stock and Chemical Markets Exhibiting Firmer Undertone

Despite the general dislocation of business during the past week resulting from the bank holiday, the paper industry continued to carry on in a satisfactory manner and the volume of business transacted was gratifying, although naturally below normal.

Many of the leading paper manufacturers are pursuing a policy of watchful waiting and are reluctant to accept orders for future delivery. Prices were withdrawn temporarily last week on many grades of paper by several important mills in anticipation of rising prices on all commodities.

Manufacturers Working Together

Manufacturers of paper in all lines are showing a better spirit of co-operation, as evidenced in the proceedings at the special sessions called by the various trade associations, and unjustifiable price cutting is being frowned on. Strict adherence to trade customs is also being insisted upon.

Conditions in the raw materials markets are decidedly firmer. Packers of paper stock report that collections have been far below normal, due mainly to the difficulty of making payments. Quotations on paper making chemicals are also firmer. Substantial advances are reported in the prices of wood rosin and the grades of gum rosin used in the paper mills.

Message to Association Members

Charles W. Boyce, executive secretary of the American Paper and Pulp Association, forwarded a message to the members of the organization on March 10, as follows:

"Substantial change in the character of business as a result of the financial crisis with which the new administration is now dealing, is by no means improbable. As yet, however, too little is known concerning the situation to permit accurate judgment of the possible influences upon the volume of business and upon prices. Nevertheless, the uncertainties in the present situation, combined with the wide-spread feeling that the administration may adopt a program of moderate inflation, amply justifies cautioning the industry concerning the acceptance of orders for future delivery.

"It is reported that here and there purchasers are beginning to place orders in larger than usual quantities in the expectation of taking advantage of present prices. Some of this business can undoubtedly be handled upon a profitable basis if the manufacturer is adequately covered in his raw material and manufacturing costs. Much of it, on the other hand, is likely to be in grades which have recently been selling at or below cost. In such cases the mills that accept orders without proper precautions may find themselves doomed to continue operation not only upon an unprofitable basis, but even at greater loss.

"Until more is known concerning the remedial measures that may be adopted by the Government, every mill should take precautionary measures to protect itself and the paper market as a whole. In recognizing frankly these uncertainties, many companies have either withdrawn prices or have limited their quotations to relatively short periods of time."

Holyoke Paper Mills Meet Pay Rolls

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., March 14, 1933—Payrolls of the paper mills here were less affected than was feared when the bank holiday was declared. The American Writing Paper Company Inc., was able to pay their entire payroll in cash. Sidney L. Willison president, had made alternate plans to pay part cash and part by check but the use of the checks was found unnecessary.

The Chemical Paper Manufacturing Company and the Crocker-McElwain Company paid their employees with scrip check which gave satisfaction and which was still more satisfactory when later in the week the firms obtained money from Boston and was able to announce that the scrip issued could be cashed at the Hafley Falls Trust Company. These scrip checks were in small denominations; for instance if a man's wage was $17.67 he would receive three $5 scrips, two $1 scrips and 67c in change.

The American Tissue Mills Inc. paid partly in cash and partly in checks of small denominations. The Whiting Paper Company paid in cash. The Franklin Paper Company paid each employe $10 in cash and will pay the balance due next time in whatever way possible.

U. S. Bank Crisis Affects Canadian Industry

American Newspaper Publishers Reduce Orders for News Print Paper—Prospective Loss of Substantial Proportion of Premiums Hitherto Collected on Payments Made In American Funds Feared—Delayment of Collections Experienced.

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., March 13, 1933.—Many business interests in Canada are wondering where they stand these days, as a result of the bank crisis in the United States, and among these none is more intimately concerned than the pulp and paper industry. The immediate effects on this industry have been as follows: 1, delayment of payments; 2, reduction of orders for news print; 3, prospective loss of a substantial portion of the premiums hitherto collected on payments made in American funds. The uncertainties created by the bank moratorium in the United States were such that a week ago the Anglo-Canadian Pulp and Paper Company closed its mills in Quebec for a few days, the general manager, R. A. McInnis, issuing the following explanation:

"The banking crisis which exists in the United States has affected our trade to a certain extent. Many of the larger newspapers in the United States for which we have been filling news print orders have reduced their daily size ten to fifteen pages. We do not wish to force them to take more news print than they need and we have therefore decided to close down temporarily. We have, however, notified our employees to return to work next week when we believe the usual output will be resumed."

Since then various papers have come out with stories characterising the U. S. banking crisis as "a heavy blow" to the Canadian news print industry, but more conservative opinion is that until the situation becomes more clear it is rash to jump at conclusions. It is claimed that the premium paid here on New York funds in settlement for news print exported to the United States has been the means of keeping some Canadian operators in business, and has been a substantial help to most companies in helping to offset decreased prices and lowered consumption. But there is no information as to what extent allowance have been made for differences in exchange, nor at the moment is anybody able to say whether or not the premium on New York funds will disappear or be substantially reduced. The one acknowledged result so far has been a reduction in orders from the United States and an intensification of the anxiety of pulp and paper operators regarding the critical situation with which the industry is faced.

As against the prospective loss which the news print industry would suffer if the Canadian dollar returns to par as compared with the American dollar, or near to par, is the prospective gain to other business interests and to governmental authorities. It is estimated that close to $275,000,000 must be met in U. S. Funds during the current year. Of this total about $110,000,000 are Dominion Government obligations; approximately $70,000,000 provincial obligations; municipalities' obligations of over $25,000,000; and corporation obligations of over $60,000,000.

It has been calculated that should the premium on U. S. funds drop from around the recent level of 20 per cent to 10 per cent nine Canadian corporations would effect a saving of $1,301,979, of which $410,000 would be represented by the Shawinigan Water and Power Company, the leading company in Quebec Province in the supply of hydro-electric current to pulp and paper mills.

A bright spot in the week's industrial news has been the financial statement of the Duke-Price Power Company reporting increased gross and net earnings, improved working capital position, payment of an initial dividend of $1.30 a share. Ths company is one in which Price Bros. & Co. and the Shawinigan Water and Power Company are substantially interested. After all charges and reserve of $100,916 for exchange, net profit was $591,879 (U. S. funds) and was equal to $2.81 a share on the 210,000 shares of no par common stock, dividends of $273,000 were paid in U. S. funds. In 1931 net profit was $573,783 or the equivalent of $2.73 a share.

Expenses Were Reduced

Gross earnings, combining U. S. and Canadian funds, were $4,305,159 compared with $4,275,283 in the previous year. Expenses were reduced by 5 per cent, other income was marginally higher, and total net income was up $64,000 at $3,751,435. Bond interest, payable in N. Y., was $2,181,152. Provision of reserve for exchange placed net profit in U. S. funds. Surplus was increased by $127,655 realized on retirement of bonds.

Fraser Companies' Statement

The 1932 financial statement of Fraser Companies, Ltd., mailed to stockholders last week end, reflects in the sharp decline in earnings continued extremely difficult conditions in the paper and lumber industries. Earnings are reduced from $1,382,341, in 1931, to $111,477, and after all charges, including inventory depreciation, general depreciation, depletion, bond interest, and other interest, the net loss on the year was $2,316,422, against a net loss a year ago of $1,260,110, after similar deductions.

The balance sheet showed many changes as a result of the scheme of reorganization approved by the security holders last year. Both replacement values and market values have been reduced, and, consequently, in order that inventories may be carried forward at a proper value a reduction to the extent of $355,432 was made effective December 31st. Of this amount $93,193.99 applies to inventories belonging to Restigouche Company, Limited. No reduction in value was necessary in connection with inventories of pulpwood.

The company's working position was weakened during the past year. Current assets at the year-end were $3,456,381, against current liabilities of $4,523,312, an excess of $1,066,931 of the latter, which compares with net working capital of $1,369,105 at the end of 1931. Inventories are lower by $1,500,000. Fixed assets are lower by over $10,000,000 at $26,163,345, and total assets at $29,781,199 compare with $50,910,672. Funded debt, including bonded obligations outstanding, interest accrued and interest on deferred interest thereon, together with notes and loans, secured by lien on the company's property, stands at $16,301,374, against $24,155,500 at the end of the year, while capital and surplus is reduced from $18,383,764 to $3,250,945.

Closing Chatham Mill Eliminates a Loss

The closing of the Chatham, N. B., sulphite pulp mill, owing to the unsatisfactory state of the market for unbleached pulp, has eliminated a loss, and K. S. MacLachlan, the president, reports to the shareholders that: "During the coming year lower cost of production can be expected through lower costs of pulpwood and other raw materials as well as through continued improvement in operations. The loss through the operation of the Chatham pulp mill has been eliminated.

Inventories of finished products have again been reduced to lower market values and unless substantial further reductions in values are established no further loss from lumber inventories may be expected."

Restigouche Co.'s Position Improved

The annual report of the Restigouche Company, Ltd., for 1932 shows a small expansion in working capital and moderate improvement in earnings. The company, of which Archibald Fraser is president, has sulphite mills at Campbellton, N. B., with a daily capacity of 300,000 lbs. of pulp.

Balance sheet changes are shown in accordance with the scheme of reorganization approved by security holders at the same time as those of Fraser Companies. Net earnings for the year were $138,269, against $104,482 in 1931. After provision for inventory decline, bank interest, bond interest and other interest, there was a loss for the year, before depreciation and depletion, of $382,387, against a loss of $526,511 a year ago. After setting aside $141,205 for depreciation, and $85,885 for depletion, there was a net deficit on the year's operations of $609,478, against a deficit a year ago of $669,805.

The balance sheet under the reorganized plan shows total assets at $11,686,986 against $15,121,528 in 1931. Fixed assets are over 4 million lower at $7,655,500, funded debt including 11 months interest and accrued interest thereon at $5,116,164 against $4,887,500. Depreciation reserve is up at $380,851 from $239,646. Working capital is shown at $66,998, compared with $35,224 in 1931.

Japan and B. C. Mills

Oscar Jorgenson, secretary of the British Columbia Pulp and Paper Company, who has just returned from the Far East, states that pulp and paper manufacturers on the Pacific Coast have nothing to fear from the economic consequences of Japan's Manchurian offensive, as in his opinion it will not be feasible for Japan to import pulpwood from Manchuria.

"There is a fairly large pulp mill on the Yellow River, and it looks after the requirements of the domestic market," he said. "But so far as I am aware Manchurian forests do not contain stands of pulpwood sufficiently easy of access to be of much importance to Japan or any other country at the present time. It would be an exceedingly difficult proposition to ship pulpwood from the Asiatic mainland to Japan. To meet her immediate needs, Japan has enough pulpwood on Saghalien and the Japanese Islands."

Mr. Jorgenson stated that the legal set-up of the big Japanese merger of paper companies is now virtually completed and that the physical reorganization will probably be functioning during the summer. The three companies involved are the Oji, the Karafuto and the Fuji, the latter having been allied financially with Oji for some time. The new company will control about 70 per cent of Japan's output of pulp and paper.

Miami Valley Meets The Crisis

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, March 13, 1933—Greater confidence was expressed in paper trade circles and in business offices and establishments generally the past week than for many months, following President Franklin D. Roosevelt's energetic and determined action to bring order out of commercial chaos, if at all possible.

For once, party lines have been eradicated in the Miami Valley, for without exception, only the most favorable views were expressed by manufacturers, wholesalers, jobbers and retailers relative to the measures suggested, and the steps taken in the Executive office to bring about a realization that prosperity, at last, seems to be turning the corner. It has been "just around the corner" for such a protracted period that many had despaired of ever making the turn.

The banking situation here has been improved and it is possible that the proposed scrip plan for which arrangements had been made to become effective Friday, March 10, will be abandoned unless it is found desirable later to introduce it. With new currency on the way, however, it is believed the scrip plan will be laid aside. In doing this Miami Valley towns realize that some of the paper concerns are going to lose some freshly-anticipated business.

For instance, the Harding-Jones Paper Company at Excello, just south of Middletown, received orders for rag paper used in scrip and it appeared, while the number of employees would not have been increased as a result, that the industry would have been greatly benefited. In addition to orders already on file the company reported jobbers from various parts of the country were sending inquiries.

An extensive scrip plan was under way in this city with all interests cooperating.

The matter of meeting payrolls was a serious one in many establishments because of the national bank holiday, which followed three days after, the local and Miami Valley banks had closed of their own accord for two to three days on a locally-proclaimed holiday.

Boston Paper Market Marks Time

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., March 13, 1933 — The moratorium caused a general hiatus in the paper business, in common with other industries, with the exception of a demand for papers used by manufacturers of new currency and for the products of these manufacturers and possibly a few other orders here and there. The bank holiday had a strengthening effect on the paper market. The opinion is expressed that unquestionably a change for the better will be the ultimate result.

There is a well defined feeling that prices will be higher. Some dealers are taking orders only for immediate acceptance of price because they may be unable to make deliveries later. Most mills withdrew prices on low grades of paper, such as sulphite bonds. The trade as a whole, has a greater degree of confidence. In box coverings there was a fairly decent amount of orders, under the circumstances. Box board trade slowed up. There was a falling-off in the demand for jig-saw puzzles and likewise for material for their manufacture.

The banking situation held up whatever business there was in paper stock, it is stated in the trade, but values as a whole are decidedly firm. There was some inquiry from brokers for rags and papers. Few or no price changes took place, but dealers are advising customers that values are to advance and that it would be desirable to buy now their supplies for the rest of March and for April, because prices are low.

Philadelphia Paper Market Has Exciting Week

Paper Trade Association and Other Local Bodies Hold Special Sessions to Meet Banking Situation—Closer Spirit of Organization and Co-Operation for Mutual Benefit Shown—Fine Paper Houses Withdraw Prices Until Further Notice

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., March 13 1933—Coincident with the most critical and stirring week in American history for many decades, the Paper Trade Association of Philadelphia also experienced a week which beyond all question will stand out in local annals with supreme prominence. Out of it comes at this writing a closer spirit of organization and cooperation not alone for mutual benefit but quite as well for that of customers. This statement is based upon a personal contact with the paper trade of Philadelphia extending for more than twenty years and is backed up by authority of President William A. Hentz, of the Paper Trade Association, who says: "I can be quoted as saying that never in my experience or in the experience of those with whom I have talked has all the Philadelphia paper trade been as united as it now is. And I may say furthermore that while to a large extent common adversity and grave questions of importance to the common trade have brought them together, none the less it is with the most complete understanding on the part of their customers and with their cooperation and appreciation as well, that this condition was made possible and has been realized." A commentary of the strenuous week which has just passed was the fact that the Paper Trade Association of Philadelphia, the parent organization, not only met in regular session but as well in a special session, and on top of that comes the call for another special session to be held tomorrow (Tuesday).

Coarse Paper Group Meets

But the very newest and latest development of the existing week was an informal but very earnest meeting of virtually every coarse paper house in Philadelphia, present at which were representatives of firms which hitherto, for reasons sufficient to themselves, sat down in conference with their competitors. In fact, save for wagon men and not more than one or two coarse paper dealers of the slightest importance, every coarse paper house in this city was represented either by personal delegate or by letter. The records of this gathering show present, sixteen firms personally and written acceptances from two others.

At this time merely the foundations of an organization have been laid under the chairmanship of T. H. B. Smythe of the J. L. N. Smythe Company, with W. B. Kilhouer, Jr., of the Quaker City Paper Company, secretary, and Charles Wilder, treasurer. The one thought reuniting all in attendance was that there existed an imperative requirement that there should be the fullest spirit of mutual understanding and cooperation in order to avert catastrophe to all. It is not proposed at this time formally to organize beyond the skeleton organization necessary for the conduct of the meeting and not even to formally adopt a name, but, on the other hand, while this new get-together gathering was impelled by the crisis, it is altogether proable that it will continue to function after present strenuous times have passed.

There are, as these columns have told, the Coarse Paper Division of the Paper Trade Association of Philadelphia, the Paper and Bag Institute, and the Paper and Cordage Association, and superficially there would seemingly be a conflict of purpose. As a matter of fact there is none because the new movement includes firms which never have been associated with any of the other formal organizations and, mayhap, will not be. There is to be no requirement for the payment of dues in the new body, merely a sincere purpose of conference and of the abolition of unfair and harmful practices which, in recent months, and, emphatically, recent weeks have virtually demoralized business conditions. Firms freely admitted the existence of these abuses and of their virtual enforced participation in them, with the only justification that if they did not compete on equal terms with their rivals they would be compelled to close their doors. Manifestly, nothing like a concerted movement to raise prices is demanded or could be maintained, but there is determination that unfair competition, unwise credits, and many other abuses must be eliminated, and eliminated immediately.

Paper Trade Association Holds Special Session

The purpose of the regular and of the special sessions of the Paper Trade Association was, of course, to keep all the members attuned to the strenuous times in which every day seems to bring with it a new development. The immediate results of the special session, held on Friday, were the announcements which have been sent out, or rather about to be sent out by all the fine paper houses, withdrawing all prices as of March 11. One of the first of these notices and one typical of the others although there is no uniformity, is that of the Garrett-Buchanan Company, whose notice reads: "Effective March 11, due to conditions beyond our control, the withdrawal of prices and suspension of activities by a number of paper mills during the past week, makes it necessary for us to withdraw all prices and quotations at this time until further notice. We ask your cooperation and will serve you to the best of our ability during this period."

The Paper Trade Association is considering also the subject which has been under agitation for years but acutely for the last few months—and this is the long standing abuse of direct selling by the mills. In order to study the subject thoroughly a special committee has been appointed consisting of Allen Whiting, of the Whiting-Patterson Company, Inc., as chairman, Fred Balch, of the Schuylkill Paper Company, and W. B. Kilhouer, Jr., of the Quaker City Paper Company. This special committee met for organization on Friday and has drafted a questionnaire to be submitted to all the paper houses in the city, asking them to be specific in their statement of their losses through direct selling beyond the boundaries of admittedly legitimate business of this character and their suggestions for improvement.

Of course, this committee will work in cooperation with similar bodies in other cities and through the National Paper Trade Association. Members of the committee are emphatic in their statement that they fully recognize the rights of mills to make direct sales under certain conditions which have long maintained but they do object most emphatically to evils which have arisen by virtue of the strenuous economic conditions of recent months. They believe that the mills are thoroughly in sympathy with the purpose and that they too recognize that the proper bounds of direct sales have been exceeded, not because any par-

ticular mill welcomed such departure but because through lack of understanding, and quite as much through the misrepresentation of customers, willing to play off one mill against another, many were forced to take positions which they regretted but which they had to assume because if they did not, the other fellow might.

Other Association Activities

Furthermore, the regular meeting of the Paper Trade Association was unusual because of the presence there as guests of individuals or firms which have never been or, certainly in recent years, have not been members of the Paper Trade Association. These were told that irrespective of their final determination to join the association or not, they would be welcomed at future sessions, certainly as long as the existing crisis continued. Including these visitors, the meeting of the Paper Trade Association was virtually one hundred per cent representative of all the paper houses in Philadelphia. Meanwhile the Paper and Bag Institute has also been in regular or special meeting, its business among other things including plan for a banquet shortly to be held; and the Paper and Cordage Association has been adding to its membership rolls. With the recent accession of the International Paper Company, the Technical Paper Company, the Hummel-Ross Fibre Company, S. Walter, Inc., the Satterthwaite-Cobaugh Paper Company and the Kalamazoo Vegetable Parchment Paper Company, it can be seen that this organization is now thoroughly representative.

Paper money became quite plentiful in the closing days of the week although money in paper was by no means obtrusively evident. The bank holiday and the modified conditions of opening were certainly fruitful of profit to those who had the necessary stock on hand. New forms of various kinds had to be provided, requiring Ledgers, Bonds, Index Bristols and many other requirements. Moreover, through the printing trade there came rush orders involving a considerable stock for the printing of notices regarding acceptance of scrip and allied matters. In fact through this accidental and unfortunately trenchant business, the jobbing trade was given quite a spurt during the week.

In the paper stock trade there is a feeling of greater confidence in an improvement, because of recent developments. Demand for the lower grades has entirely cleaned up the market, but unfortunately without the slightest evidence thus far without any strengthening of prices. While the trade believes that this is inequitable, none are disposed to store up these lower grades in anticipation. Much of the stock does not pass through the hands of the larger dealers because the army of unemployed is gathering up all the waste paper and is selling it to many small dealers who ship to the mills direct. Likewise the feeling exists that the better grades like white shavings are likely shortly to go on a basis which will afford some profit because of the prospect of higher prices in Scandinavian pulp. The market is entirely cleaned up because of comparatively small volume of stock coming in and readiness of the mills to buy but only at rock bottom figures. The jobbers are of opinion that there may be an accumulation of these grades on the part of the mills, irrespective of the wood-pulp situation in their belief that existing rock bottom quotations, bargain buying is possible. Prices, however, remain exactly as they were since January.

Aubrey Crabtree Made Mill Manager

EDMUNSTON, N. H., March 10, 1933—Fraser Companies Ltd. announce that Aubrey Crabtree, general superintendent of Fraser Paper Ltd., is now mill manager.

Boston Paper Trade Happenings

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., March 13, 1933—Herbert C., James L. and A. Lawrence Ham are now located at Room 631, Rice Building, operating as individuals handling a complete line of printing papers.

The Arnold-Roberts Company is distributing to the trade sample books of Ohio Cover, a new product of the Beckett Paper Company, Hamilton, Ohio, makers of Buckeye-Beckett papers. This paper is manufactured in three weights and besides white and black in the following colors: Seal, ivory, corn, sky blue, pearl gray, dark brown, jade, and red.

A sales meeting of Storrs & Bement Company was held Saturday morning with General Manager John H. Brewer presiding. Company business was discussed. A blotting paper talk was given by Mr. Feketie, of the Wrenn Paper Company, Middletown, Ohio.

Henry S. Cashman, of the Hartford, Conn., office of Storrs & Bement Company visited the home office Friday and Saturday for a business conference.

The regular March meeting of the New England Paper Merchants Association was held March 9 at the Hotel Touraine, with President F. Bendel Tracy in the chair. Business conditions were discussed.

D. C. Spaulding, secretary of Baird & Bartlett Company, and Mrs. Spaulding, were severely bruised and shaken up when their car was hit by another in Mystic Valley, Medford, Mass., on Sunday, March 5. Their escape from even more serious injuries seems miraculous, as Mr. Spaulding's car was completely capsized.

Arthur C. Hall, treasurer of John Carter & Company, Inc., who has been at Peter Bent Brigham Hospital three weeks, is able to return to his residence at Reading.

Col. Edgar Smalley, of Edwin Butterworth, Ltd., Manchester, England, who has been in this country a few weeks, with headquarters at the Boston office of E. Butterworth, Inc., sailed for home Saturday on the *Adriatic*.

Chromium-Plated Suction Box Covers

The Chromium Corporation of America, with executive offices at 120 Broadway, New York, recently published an interesting illustrated bulletin entitled "Chromium-Plated Suction Box Covers," which demonstates that this application is productive of considerable operating economies in the paper mill.

The bulletin shows that performance records of a paper machine operating at from 650 to 800 feet per minute indicate an average increase in wire life of 30 per cent. by use of Crodon plated covers. Another high-speed machine increased wire life 50 per cent.

A mill using Crodon plated covers reports that suction has been doubled, felt life increased 30 per cent., and a sheet obtained with 1½ per cent. to 2 per cent. less moisture. Another mill found it necessary to clean wooden covers once a week; after installing Crodon plated covers in the same machine no cleaning whatever was necessary during one and one-half years of actual running time.

Universal Paper Co. Expands

[FROM OUR REGULAR CORRESPONDENT]

FITCHBURG, Mass., March 13, 1933—The Universal Paper Company, manufacturers' agents and paper jobbers, has opened an attractive store and warehouse at 133 Main street. Edward Jardus and Charles Winthrop are the owners. Mr. Winthrop was formerly with the Fitchburg Bag and Paper Company.

Activities of Fox River Valley Paper Mills

Gilbert Paper Co., of Menasha, Wis., Secures Flood of Orders for Bank Note Parchment — Capacity Runs on 24-Hour Schedule Made to Fill Demand—Wisconsin Paper Manufacturers Generally Continue Normal Operations, Despite Banking Situation

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., March 13, 1933—Issuance of scrip in the money centers due to suspension of banking brought a flood of orders last week to the Gilbert Paper Company, Menasha, Wis., makers of bank note parchment. Capacity runs had to be made on a 24-hour schedule to fill the demand. The Gilbert company has manufactured this paper for a number of years for institutions issuing currency. No additional employees were added, but the working schedules were increased.

Mills of Wisconsin operated about as usual and expected no interruptions because of the banking situation, believing sufficient relief would be forthcoming soon enough to permit normal transactions. Companies did their utmost to help their employees obtain cash. Neenah Paper Company issued orders in denominations from $1.00 to $10.00 drawn on the company's treasury. Marathon Paper Mills Company, Gilbert Paper Company, and George Banta Publishing Company issued checks in denominations of $1, $5 and $10, instructing merchants to honor them as currency. Consolidated Water Power and Paper Company and Ahdawagam Paper Products Company, cashed checks for their employees. Pay checks of Kimberly-Clark Corporation had already been made out when the banks were closed and were issued with explanatory notes attached.

Consolidated's Share the Work Plan

Increased efficiency without increase of operating costs results from the Consolidated Water Power and Paper Company's "share-the-work" plan, Leo J. Barrett, employment manager of the company, explained in a recent address at Wisconsin Rapids, Wis. The plan was first tried about three years ago, Mr. Barrett said. A year ago plans were started to make the plan permanent, or at least until the employment situation changes. Now the system is operating 100 per cent in all divisions except the mill at Stevens Point, Wis. Shift workers are employed on six-hour shifts instead of eight, and day laborers five days a week instead of six. "If the share-the-work plan were discontinued now in the Wisconsin Rapids and Biron mills," said Mr. Barrett, "we would have to lay off no less than 162 men." Employees requested the system themselves, and 85 per cent were in favor of it when adopted. The other 15 per cent heartily approve it now. The burden of employment administration is increased some by the change, but otherwise operations are about as usual.

Vocational Training Discussed

Changes in the education of paper and pulp mill workers in part time and evening schools were discussed at a meeting of directors of vocational schools of the state at Wausau, Wis., last week. Representatives were present from Marinette, Appleton, Kimberly, Green Bay, Rhinelander, Stevens Point, Wisconsin Rapids, Neenah, Menasha and Wausau.

Various phases of the program and recommendations for a future policy were presented in an address by F. C. Boyce of the Wausau Paper Mills. Allen Abrams, technical director of the Marathon Paper Mills Company, spoke on "Educational Needs of the Industry in Keeping with the Technological Changes in the Pulp and Paper Industry."

Another speaker was N. B. Giles, Washington, D. C., taking up the subject of "Job Analyses in Determining Special Courses in the Paper Industry." Herb Heilig, director of Appleton Vocational School, and H. O. Eiken, director at Green Bay, spoke on safety instruction in the paper industry. Manufacturers expressed themselves as highly in favor of increased education of workers in order to keep abreast of changes in the industry.

News of the Industry

Cornell Wood Products Company, Cornell, Wis., last week completed 892 consecutive days of safety, with no lost time accident during that period. The event was celebrated with a dinner of foremen at which S. W. Brown, safety engineer of the Employers Mutual Liability Company, Wausau, Wis., was the principal speaker.

A public meeting has been called by the Mayor of De-Pere, Wis., to consider the request of the Nicolet Paper Company for a deferred plan of payment of taxes and a reduced assessment, as requested of the city council by H. B. Kuhns, manager. The council has discussed the matter informally, but seeks the opinions of taxpayers generally before reaching a decision. The mill has employed 100 men and the company believes the community will cooperate to assure future work.

William Nash, former Neenah, Wis., paper manufacturer, has arranged to market through the Seaman Paper Company, Chicago, his newly invented "Seapak" insulation, made of kapok, found in Java and the East Indies, and the silky fibres of milkweed found in this country. The material is being made for the trade at Kalamazoo, Mich. The insulation is found especially desirable for automobiles, airplanes and refrigerators. The same product is being used for clothing and blankets, and for bags serving the same purpose as vacuum bottles.

Change for Eaton Paper Co.

PITTSFIELD, Mass., March 14, 1933—The Eaton Paper Company, manufacturer of fine writing papers, announced last week a reorganization program. It stated that control would remain in the Crane and Eaton families but that a minority stock interest had been acquired by the Western Tablet and Stationery Corporation of Dayton, Ohio.

The plan contemplates a reduction of capitalization by an exchange of securities and particularly through refunding of $656,000 of debenture notes on a basis which will postpone all maturities for ten years. The company's mill at Adams is to be leased to Henry J. Guild, now general manager, and his associates.

The directors will be Arthur W. Eaton, Colonel William H. Eaton of Pittsfield, Winthrop M. Crane of Dalton, Nelson Edwards of New York, Horace W. Edwards of Binghamton, N. Y.; Herbert F. Boynton of Boston; George G. Bulkley of Springfield.

Chicago Paper Market Conditions Are Firmer

Stiffening Process Continues General in Book Paper Division—Sulphite Bond Section Displays Somewhat Stronger Undertone—Kraft Wrapping Paper Situation Remains Practically Unchanged—Paper Board Industry Quiets Down Temporarily

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., March 13, 1933—There is a feeling in Chicago that the drastic measures of the past week have done a lot to clarify the situation and that the way is much more open for a genuine improvement than was the case a few weeks ago. Naturally, little tonnage was booked in Chicago during the last six days but there was a noticeable firming up in several markets which strongly indicated the belief of Chicago paper representatives that mild inflation, if backed by sensible congressional action, was going to be of help.

Reports indicate a continued firmness in the book market, the stiffening process beginning about ten days ago. Sulphite bond also showed a tendency to firm up. The kraft market remained about the same, at a fairly low level, not much advance tonnage being booked and the tendency being to wait and see which way the market goes. With prospects better for firmness, better sentiment may reveal itself in this market next week. News print and ground woods continued practically unchanged. Fine papers reported no appreciable mount of sales but did signify a belief in improvement within a very short time. Paper board continued to take advantage of an improved outlook although the lack of cash or buying stimulus quieted things down momentarily. Considering the drastic move taken to conserve bank assets and to bring confidence back into business, the paper market here acted as well, if not better, that the majority of other commodity markets.

Meetings of Paper Groups Postponed

The bank holiday did a lot more than put the quietus on business in Chicago's paper market during the past week. At least three meetings of paper groups were either definitely or indefinitely postponed. A very small group of writing paper manufacturers met at the Drake Hotel on March 8 and decided to postpone further session indefinitely. The Sulphite bond group and the book paper group, also scheduled to meet at the Drake Hotel this week, decided to postpone proceedings until the ban on money had been lifted. The book manufacturers, it is understood, will hold their session on March 16 at the Drake, although even this date is predicated on a big change in the situation.

The Envelope Manufacturers had a program scheduled for March 10 and 11 at the Congress Hotel and members were advised this week that this meeting was also postponed indefinitely. Chicago reports indicate that the meeting may be as far as from two to four weeks away yet.

Paper Salesmen Meet

The Middle West Division of the Salesmen's Association of the Paper Industry held one of its most well attended weekly sessions on March 6. The meeting quickly resolved itself into an open forum discussion of the bank moratorium and, with proper direction, might have turned into a barter and exchange market as the salesmen attempted to uncover sufficient funds to carry them along until they could reach their bank accounts—if any. Next Monday the association expects an even larger attendance unless conditions permit the salesmen to return to the road. A number of houses have called their salesmen off the road because of inability to finance the trips due to the shortage of funds.

Rag Content Bulletin

Number 46 of the series of interesting messages sent out by the Rag Content Paper Manufacturers contains a timely letter written by Grover Whalen, general manager of John Wanamaker's, New York. "Right now," says Mr. Whalen, "there is need for every business executive to give real thought to his customer relations—and in terms of quality . . . I am glad to know that a group of paper makers are giving the subject its proper "place in the sun." And the manufacturers group adds "when competition for orders is mercilessly keen, that is the time to make your correspondence do its most telling job. It has the best chance on quality papers.

Century of Progress Exhibition

Returning from a week's trip through Wisconsin, in the interests of the paper exhibit planned for the Century of Progress Exposition, Phil Howard, managing director of the Paper Foundation, reported much success in lining up individual exhibits from tissue and rag content mills in the Wisconsin paper centers. The individual exhibits, will, of course, be of material benefit in financing the general paper exhibit which is planned to tell the story of paper to the millions of visitors to the 1933 Fair. During the past week, with business at a stand still because of the national moratorium, Mr. Howard said that no cancellations or letters indicating a change of mind due to the business situation, were received. This is taken as a strong indication of the unusual interest in the paper exhibit.

Interlake Tissue in Good Position

TORONTO, Ont., March 13, 1933—The annual meeting of shareholders of Interlake Tissue Mills, Ltd., with mills at Thorold, Ont., was held at the head office in Toronto a few days ago when the usual quarterly dividend was struck. Addressing the directors and shareholders, George Carruthers, president and general manager, stated that the program of plant improvement decided on a couple of years ago had been practically completed. While the company had certainly not been immune from the effects of the depressed condition of trade, still its position must be regarded as a relatively satisfactory one. The board of directors was re-elected, with Mr. Carruthers as president and general manager; S. F. Duncan, vice-president and treasurer, and W. J. Parks, secretary.

Barger Box Incorporates

INDIANAPOLIS, Ind., March 13, 1933—Articles of incorporation have been filed with secretary of state here by the Barger Box, Inc., of Elkhart, Ind., formed to manufacture boxes and containers. The corporation has an initial capital stock of 1,000 shares at $10 each par value and the first board of directors is composed of G. E. Compton, C. A. Moffat, Paul L. Myers, William C. Barger, Ruth K. Moffat and Herman A. Compton.

Notes on the Development of the Manufacture of Sugar and Alcohol from Wood

Assembled and Translated from the German by Alfred Hurter[1]

In the second decade of last century, the French analytical chemist Bracannot succeeded in completely converting cellulose into sugar by means of treatment with concentrated sulphuric acid. Even at that time his discovery created a great sensation scientifically and economically. This new realization indeed proved fundamental to further research in the field of cellulose chemistry. It was thus proved that the elements of cellulose are exclusively sugar and that it is possible to convert cellulose to its original condition. But Bracannot's technical achievement did not prove a success. The very considerable consumption of acid and the difficulty of recovering the acid, whilst working with concentrated acids, bar the economic utilization of this method.

Development in 1856

In spite of the fact that the following decades brought about an immense advance in chemistry, achieving also the industrial manufacturing of beet sugar, it was only in the year 1856 that new epochs in this developmet of the saccharification of cellulose are recorded. In the same year S. F. Melsens reports of experiments for the saccharification of cellulose with diluted acids combined with heating. He required considerably less quantities of acid than Bracannot, but his quantitative results were so insignificant that his process failed to attain economic importance—almost simultaneously Béchamp described the effect of concentrated hydrochloric acid.

Subsequently Dangevillé (1880) evolved a new procedure: the saccharification of cellulose with concentrated liquid or gasiform hydrochloric acid at low temperature obtaining satisfactory output, allowing also the recovery of the hydrochloric acid by distillation. The technical difficulties, in connection with the distilling of concentrated hydrochloric acid, frustrated Dangevillé's efforts and his process was soon forgotten. On the other hand, the saccharification with diluted acid was further developed 18 years later, in the year 1898, by the Swedish scientist E. Simonsen, and in the following years became the subject of numerous works by others. The Americans, Ewen and Tomlinson, in the year 1909, created in Georgetown an industrial process of saccharification with diluted acids. Their consumption of acid was reasonable, but their practical results regarding output were as insignificant as those of their predecessors. They only secured about 6 litres of alcohol out of 100 kg. of dry wood substance. Nevertheless their process must, at that time, have been on the borderland of economy, for when the factory in Georgetown was burnt down in 1913, new works were erected, which are said to have been running until 1916.

Diluted vs. Concentrated Acids

According to Bracannot's process a sugar output of 60 Kilograms, corresponding to a spirit output of about 30 litres, should be obtained from 100 Kilo of wood. One wonders, therefore that a process for the manufacturing of alcohol from wood has been employed, which only yields one fifth of this output. This, however, finds its explanation in the important technical advantage obtained by working with diluted acids as against working with concentrated acids. Whereas the process working with concentrated acid necessitates four periods, i. e. the drying of materials, the treatment with concentrated acids, the recovery of the acid and the converting of the carbohydrates into a fermentable state, one can, by the use of diluted acids, in one single process, obtain fermentable sugar from moist or even wet cellulose material. The recovery of the acid is unnecessary, as the small amount of acids required can readily be abandoned. In the meantime, in Germany in 1913, Willstaetter, Zechmeister and simultaneously Wohl, discovered the action of over-concentrated hydrochloric acid upon cellulose, whereby the saccharification with concentrated hydrochloric acid attracted renewed attention.

During the war Germany required large quantities of sugar for the preparation of glycerine, resulting in a great shortage of sugar. The consequence was that the manufacture of sugar and alcohol from wood was practised on a very considerable scale. Diluted acid was used according to the processes developed by Simonsen, Classen and Ewen and Tomlinson, and factories were erected in many places. From August, 1918 to September, 1919 the total output of the Stettin works amounted to 150,000 litres of alcohol. But, as in America, 100 Kilograms of dry wood substance yielded only 6 litres of alcohol. All through 1919 the attempt was made to keep the works going, but the insufficient output proved to be economically unsound. In consequence of these failures, the saccharification of cellulose with diluted acid was generally looked upon as uneconomical. This opinion was upheld among others by Prof. Bergius and shared by Hägglund in his book "Holzchemie" (Wood-chemistry) 1929, Page 183. It was considered impossible to increase the output by any technically practicable means.

Research After the War

After the war, research on saccharification with concentrated hydrochloric acid was taken up with renewed zeal. Notable outputs and the possibility of the recovery of the hydrochloric acid acted as a stimulus. In accordance with Willstaetter's results, Hägglund, Bergius and their colleagues worked out the "Rheinau" process, whilst the "Prodor" process of Levi and Jerrisse may be looked upon as the continuation of Dangeville's work. Both the Rheinau" and the "Prodor" processes were put into operation at Geneva, Switzerland, in 1927 and 1928, but the manufacture was again abandoned. Since then no other similar works have been erected.

In pursuance of prior research on saccharification of cellulose with diluted acids, renewed studies were devoted to this problem by H. Scholler of the Technical High School in Munich, in Prof. Dr. Lüers' laboratory during the years 1922 and 1923. It was ascertained that the poor output up to date was fully explained by the decomposition of the sugar already formed.

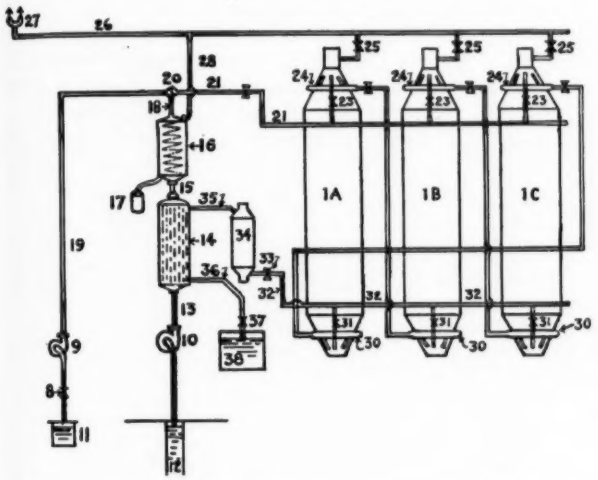
Only as late as 1926, Scholler discovered means and ways, whereby the most disturbing decomposition of sugar during the process was eliminated, and thus a big output of sugar was rendered possible by saccharification with heated diluted acids. About 170°C of hot, slightly acidu-

[1]Consulting Engineer, Cheyne House, 62/63 Cheapside, London, E.C.2.

lous water flows continuously and comparatively quickly under pressure of about 8 Atm. (119 lb.) through the cellulose-material, thus carrying away the sugar which is being formed during the saccharification process from the apparatus where the reaction takes place, leaving, so to say, no time for any decomposition. As soon as the sugar solution has left the apparatus, it is cooled, so that further decomposition is avoided. This new method is called "pressure percolation" with diluted acids. In order to guarantee success, the temperature, the concentration of acid, the time of reaction and the swiftness of the flow must be well balanced. By this means 100 Kilogs. of soft dry wood substance will yield 25 litres of 100 per cent alcohol (corresponding to 35 imp. gallons per ton).

The First Large Factory

Since the beginning of 1928 the process, conjointly with the Tornesch distillery, was step by step developed industrially and at the end of 1930, the first large factory of this kind opened at Tornesch proved a complete success. The scientific experiment had successfully been transferred to the industrial stage. The output-figures of the laboratory were substantiated by bulk production and even slightly exceeded.



Professor Lüere, referring to a schematic design (see illustration) gives the essential following description: The percolaters 1a, 1b and 1c are cylinders 10 metres high and have a diameter of 1.60 to 1.80 m. One of the percolaters is lead-plated throughout, the others are lined with acid proof bricks. The brick-lined percolaters contain 20,000 litres, the lead-plated contains 25,000 litres. The ends of the cones are fitted with an acid-proof filter for the purpose of separating the sugar-containing wort from the residues.

The small acid-proof pump 9 and the large water-pump 10 are used for the percolating liquid. Both pumps are driven by motor 12 and are coupled, so that the proportion of the circulated quantity of acid and the quantity of the required water is independent of the number of revolutions of the joint motor. The acid-pump 9 is fed with sulphuric acid of 40 per cent from the reservoir 11. The pump 10 pumps water through the counterflow heater 14 at a pressure of 10 Atm., the water thereby being preheated by the inflowing hot wort. The hot water now reaches the steam-heater 16 through pipe 15. The water already warmed to about 150°C is now heated up to the desired reaction temperature of 160-190°C by means of fresh steam from pipe 28. Through pipe 18 the heated water reaches the mixture apparatus 20, where sulphuric acid of 40 per cent is added, which, as stated, is pumped through pipe 19 by acid-pump 9. The pumping capacity of pumps 9 and 10 is so regulated that a circulating mixture of the desired proportion (water containing 0.2-0.6 per cent of sulph. acid) is produced. This mixture passes through the distributing pipe 21 and valves 23 into the ringshaped distributor 24 and then flows through the percolators. Arrangements are provided to switch on the percolators parallel as well as in series. After the hydrolyzing mixture has passed the contents of the percolators and has absorbed the sugar formed, it enters the filter in the form of sugar-wort and reaches the neutralisator 34 through pipe 32. This neutralisator is filled with ordinary granulated phosphate and raw lime, thus extensively neutralising the sugar-wort during its passage. The phosphate retained by the sugar-wort serves later on the purpose of intensifying the formation of yeast. The neutralised wort now enters the counterflow heater 14, heating the incoming cold fresh-water. The cooled wort then passes the throttle valve 37 and reaches the wort-reservoir 38.

The Raw Material

The raw material used in Tornesch consists of woodchips, sawdust, shavings, machine-shavings and raspings. This (soft-wood) material yields, as already mentioned, 25 litres of 100 per cent pure alcohol per 100 kilos of dry wood substance. Naturally, the output fluctuates according to the kind of raw material subjected to the saccharification process. But it is interesting to note that the bark of trees, otherwise almost totally useless, still yielded about 17 litres of 100 per cent pure alcohol per 100 kilos of dry wood substance (4.536 litres = 1 imp. gallon).

Based on the assumption of a factory of 60 tons daily consumption of waste wood, a careful calculation, including reasonable overhead charges, 6 per cent interest on invested capital for the installation of the factory and 9 per cent annual depreciation of the machines, the cost price of 1 litre of 100 per cent pure alcohol is less than 20 pf. (corresponding—at par—to 10d. per imp. gallon). As, however, in above calculation of the cost price of the alcohol produced, the raw material (the waste wood used) is priced at 20 Mark per ton, or fully 40 per cent of the cost of the alcohol, the latter is considerably reduced as soon as the raw material can be procured at a lower cost.

Technical Simplicity

A great advantage of the process is, that its technical simplicity also enables comparatively small establishments to work advantageously. In such countries, where the waste wood lies scattered about the land and its collection at greater distances is rendered more expensive, in consequence of high freightage, it is of importance to be in a position to carry on the production by numerous de-centralized smaller works.

There is also no necessity for the raw material used for saccharification to be completely split into small pieces. For instance, it does not matter if larger pieces of wood are filled into the percolators, as long as such pieces are embedded in small material. The raw material need also not be dried, it can even be filled into the percolators in a completely wet state.

In addition to the production of alcohol, about 60 kg. of 50 per cent water-containing lignin pro 100 kg. of dry wood substance are obtained. For the time being, this lignin is consumed at Tornesch under the boiler. This fuel provides the greater part of the necessary heat and energy for the process, including the fermentation and distilling. The lignin in a dry state has a heat value of about 6,000 (metric) cal., and is easily ground and

formed into briquettes. It is practically free from ashes, ignites easily and is also suitable for gasification. It is of particular interest to note that, when finely ground, it can be used directly for internal combustion motors, a fact which has been proved by experiments.

Low Cost Insures Large Output

At such a low cost price of 100 per cent pure alcohol as obtained by this process, it will be possible to use alcohol as an admixture to the benzine for motors without adding to the cost of the motor fuel. This means a huge, regular outlet for the manufacture of alcohol.

Numerous chemical products, which, in consequence of the high cost of alcohol, cannot at present be produced at reasonable prices, could, in future, be manufactured much cheaper.

The possibility of producing yeast on a large scale as a highly albuminous cattle-fodder, may be furthermore pointed out. The sugar worts from wood form an initial material for yeasts. By adding nitrogen and phosphates, the economic production of easily digested albumin is ensured.

In places where maize can be produced cheaply enough in great quantities, the process can also be advantageously combined in such a manner that, by means of a mash-process, sugar worts are produced from the sweet-corn, but also by saccharification of the otherwise useless stalks and leaves of the maize plant, according to the Scholler process. It may also be mentioned that other industrial branches, dealing with the production of lactic acid, butyric acid, citric acid, glycerine and similar articles, will be glad to buy cheap alcohol in quantities.

The ideal, appealing to the analytical chemist, would naturally be the complete technical utilization of all wood and lignin components, which, for the time being, are simply used as fuel. Let us hope that chemical research work will succeed in also producing valuable substances from the lignin. That would mean the crowning of Scholler's successful, extremely interesting and promising process.

Acknowledgments

The author wishes to express his thanks to Drs. H. & K. Scholler and Prof. Dr. H. Lüers for the cooperation in preparing this paper.

"American" News Print

By J. L. Fearing [1]

An organization called the Wire Cloth Manufacturers Association has mailed to us a copy of a letter with other papers attached in which the newspapers of the United States are bitterly criticized for using Canadian news print. In their letter a duplicate of which they state has been sent to every newspaper in the United States, they say:

"When hundreds of newspapers look to Canada and Europe as their source of supply (of news print) it is little short of a national calamity. *A foreign purchase is a donation to that country at the expense of the United States. And, it is un-American.*"

They also say:

"We respectfully request that you let your readers know that your patriotic impulses are not governed by greed, and run across the top of one of your pages the following statement:"

"This publication is printed on paper made by Labor in the United States of America."

Before attempting to discuss the news print situation, let us look at some figures.

Year	United States Newsprint Sold in United States	Canadian Newsprint Sold in United States
1910	1,130,000 tons	25,000 tons
1932	990,000 tons	1,640,000 tons

The Wire Cloth manufacturers were evidently ignorant of the facts and conditions existing in the news print industry when they said, in effect, that the publishers of the United States should not use Canadian news print but should confine their purchases to the United States mills. They could not have known that our northern neighbors now supply approximately two thirds of all the news print paper consumed in the United States! Probably also they were unaware of the fact that Canada's news print industry has, to a very large degree, been financed with capital from the United States. And possibly these Wire Cloth gentlemen were equally in the dark as to the reasons why the production of news print in the United States is now less than in 1910, while its growth in Canada in recent years has been so phenomenal that today news print is the leading manufacturing industry of the Dominion?

Let us, therefore, review some of the facts so that proper conclusions may be reached.

[1] Sales Manager, International Paper Co.

In 1911, following a long and persistent campaign on the part of powerful interests in this country, Congress was aggressively urged to attach a "rider" to a Reciprocity Treaty with Canada which was then under consideration. The rider called for free entry of Canadian news print into the United States. It was adopted by Congress, as was the Reciprocity Treaty itself. Later on, in the same year (1911) Canada declined to accept the Reciprocity Treaty:—but the news print rider was not contingent upon trade advantages from Canada and became operative.

It would serve no good purpose to review now the reasons advanced by those who then demanded from Congress free news print from Canada:—nor would it be helpful to state why the manufacturers of the United States, including International, strenuously opposed the move. For the purposes of this discussion it is enough to note that since 1911, by the act of our own Congress, news print from Canada has been admitted into the United States duty free.

Following free trade with Canada, many manufacturers owning news print mills in the United States naturally turned their eyes northward, where a widely extended forest domain, controlled by the Government, was welcoming capital from the United States with open arms. International, however, was reluctant to move its news print operations to Canada. Along with many other United States manufacturers it did not relish the uprooting of established institutions. It knew that small towns in New England and New York had grown up around its paper mills:—that churches and schools had been built and that many employees owned their homes. What would such people do if their chief source of livelihood should be eliminated? Obviously, difficult social problems would have to be solved.

But, as the years went by, it became more and more apparent to International that with Canadian news print entering the United States market duty free, it could not hope indefinitely to postpone moving its major news print operations to Canada. In 1922, its first Canadian news print unit was established at Three Rivers, Quebec. Meanwhile, other companies had built modern mills in Quebec and in Ontario and were becoming more and more aggresive competitors of International in the United States market. By 1924 it

had become imperative that further expansion in Canada must be undertaken if International expected to maintain its position in the news print field. With this in mind, the company doubled the capacity of its plant at Three Rivers. During the period between 1925 and 1929 it also erected mills of the highest efficiency at Gatineau, Quebec, and Dalhousie, New Brunswick; and early in 1928 it acquired, by purchase, a thoroughly modern plant at Corner Brook, Newfoundland.

But International's program of necessary expansion across the border did not result in any curtailment of its activities in the United States. Quite the opposite. Here are some figures that show International's position in 1932 in the paper industry of the United States as compared with its position in 1910:

I. P. Co. Paper Production
(in the United States)

Year	Newsprint	Other Grades	Total
1910	365,800 tons	62,438 tons	428,238 tons
1932	127,057 tons	527,008 tons	654,065 tons

In explanation of the increased production in the United States by International since 1910 in grades other than news print it is only necessary to say that many of International's former news print mills in New York and New England have been converted to the manufacture of book, bond, tablet and other grades, and that it has built up a huge Kraft paper industry in the states of Florida, Alabama, Mississippi, Louisiana and Arkansas.

Let us now return to the issue raised by the Wire Cloth Manufacturers Association:—that Canadian news print should not be considered "American" so far as the United States market is concerned.

No major industry outside the borders of the United States is as truly American in character as the news print industry of Canada. It is safe to say that more than half of the total investment in Canada's paper industry is represented by United States capital.

While Canada sells a very large proportion of her news print in the United States, she has always bought in our country a considerable portion of her requirements of two of the three essential raw materials used in the manufacture of news print:—coal and sulphur. In 1931, the latest year covered by official statistics, the Canadian industry imported from the United States 660,478 tons of coal, valued at $3,667,935.00:—and 129,402 tons of sulphur, valued at $3,118,471.00. It also imported no small quantity of other materials and equipment for paper making and, if we take a really *broad* view of trade relationships, we find that Canada is the second best customer of the United States. The value of United States exports of all kinds to Canada in 1929, 1930 and 1931 averaged 670 million dollars yearly. During those years, our purchases from Canada (including news print) averaged 400 million dollars yearly. To this could be added our tourists expenditures, which show a balance in Canada's favor which averages, for the three years mentioned, 192 million dollars yearly.

Having in mind the action of Congress in 1911, together with basic facts and figures that clearly show how closely woven is the news print industry of North America:—knowing also that wage scales and living standards in Canada are substantially the same as in the United States, *can anyone justly say that North American news print is not truly "American"?* We hardly think so!

Today the North American newsprint industry, like all other industries, is suffering from a depression. The consumption of news print in the United States, which, for the first twenty-nine years of the century, increased annually about 6 per cent, has now dropped more than 30 per cent from the 1929 level. Accompanying this drop, prices have been repeatedly reduced, with the result that many important companies not only do not earn the interest on capital invested, but suffer operating losses which, if continued, must inevitably force them to shut down.

Sales and offerings of news print from European countries at unprecedentedly low prices, partly made possible through lower wage scales and different standards of living, but chiefly through the drastic depreciation of European currencies, have contributed further to harass the American news print industry and add to its unemployment problems.

The attitude of the newspapers of Canada and of the United States is consistently helpful to labor, to agriculture, to mining and to manufacturing. Publishers, of course, know that their own prosperity depends upon the ability of the public to buy the goods that are advertised. They know that if buying power languishes, advertising slumps.

They are well aware of the conditions now existing in the American news print paper industry:—they know that a constructive attitude towards those who supply them with their white paper is desirable and necessary from every practical point of view.

In attacking the newspapers of the United States for purchasing Canadian news print on the ground that it is not "American," the gentlemen of the Wire Cloth Manufacturers' Association have taken a slap at the American news print paper industry as well.

If our publishers were forced to rely on the capacity output of all the reasonably modern U. S. news print mills, they could obtain less than half of their present requirements. If to this were added the capacity of the older and obsolete mills in the United States at prices high enough to justify running them (in 1926, the last year such mills ran to capacity, prices were 70 per cent above today's prices), our publishers could obtain only a little more than half of their supply, even at today's low consumption level.

Had the Wire Cloth gentlemen understood the real facts, they would undoubtedly have refrained from indulging in their ill-considered and untimely criticisms.

National Paper Products Outlook

[FROM OUR REGULAR CORRESPONDENT]

CARTHAGE, N. Y., March 13, 1933.—Officials of the National Paper Products Company were the principal speakers at a meeting held here this week under the direction of the Chamber of Commerce, at which a discussion of conditions in the paper manufacturing industry took place. Charles A. Grondona, general manager of the company, confined his remarks principally to affairs of the concern and described it as being in sound condition and constantly on the outlook for new business. He declared that the main problem now is to keep the quality of products up and the overhead down as far as is possible. He also urged that the products turned out at the local plant be given a greater preference than at present inasmuch as the company employs a large number of local residents.

W. A. English, office superintendent, emphasized the fact that the company was in a sound financial condition and that the profitable operations of the past several years assured the continuance of business at the local plant. A brief address by Peter Sinclair, chief engineer, revealed that about $100,000 had been expended at the local mills during the past year in an effort to lower operating costs. G. Elmer Emigh, plant superintendent, stressed the fact than an excellent supply of labor is available here which is highly efficient and that it has not been necessary to look for skilled help in neighboring mill towns.

Paper Imports and Exports of the United States

For December and for the Twelve Months Ending December 31, 1932

PAPER IMPORTS

Articles	December, 1932 Quantity	December, 1932 Dollars	Twelve Months, Ending December, 1932 Quantity	Twelve Months, Ending December, 1932 Dollars
PAPER AND MANUFACTURES	.....	6,204,526	.....	94,089,418
Printing paper—				
Standard news print, free, thous. lbs.	268,893	5,689,836	3,582,294	84,675,654
All other, n. e. s., dut. lbs.	206,574	5,383	3,639,000	97,226
Greaseproof and waterproof paper dut. lbs.	14,921	2,988	430,746	57,169
Kraft wrapping paper, dut. lbs.	502,913	15,684	7,237,207	221,169
Other wrapping paper, dut. lbs.	131,990	4,881	2,538,476	78,638
Writing and drawing paper, dut. lbs.	144,381	21,553	1,680,914	263,617
Paper and envelope combinations, dut.	.....	6,993	.....	92,192
Surface-coated paper, dut. lbs.	81,257	28,118	837,616	342,665
Uncoated paper, decorated, or embossed, dut. lbs.	1,213	381	50,984	13,360
Tissue and similar papers—				
Not over 6 pounds to the ream, dut. lbs.	40,026	13,728	1,051,732	467,811
Other, dut. lbs.	13,838	4,196	373,351	130,322
Paper boards, n. e. s.—				
Pulp board, in rolls, dut. lbs.	2,683,769	45,662	21,665,931	367,009
Paper board, pulpboard, n. e. s., and cardboard, dut. lbs.	1,242,894	24,219	10,435,702	182,909
Leather board, test, and wallboard, dut. lbs.	50,778	5,762	2,366,228	135,405
Cigarette paper, books, and covers, dut. lbs.	817,761	185,010	17,442,169	4,141,144
Hanging paper (wall paper), dut. lbs.	32,357	5,849	404,160	97,839
Duplex, decalcomania, not printed, free lbs.	1,229	202	288,104	47,151
Paper boxes, dut.	.....	37,233	.....	700,378
Papier-mache and pulp manufactures, dut.	.....	15,375	.....	264,887
All other paper and manufactures, dut.	.....	91,473	.....	1,712,873

PAPER BASE STOCK IMPORTS

Articles	December, 1932 Quantity	December, 1932 Dollars	Twelve Months, Ending December, 1932 Quantity	Twelve Months, Ending December, 1932 Dollars
PAPER BASE STOCKS	.....	5,214,577	.....	54,446,020
Pulpwood cords	20,943	160,664	648,188	5,581,976
Rough—				
Spruce, free cords	1,686	8,876	114,344	912,451
Other, free cords	.....	.....	22	160
Peeled—				
Spruce, free cords	14,175	118,411	458,726	4,206,989
Other, free cords	4,957	31,963	72,432	432,861
Rossed—				
Spruce, free cords	125	1,414	2,664	29,515
Other, free cords	.....	.....	.....	.....
Wood and other pulp—				
Mechanically ground wood pulp—				
Unbleached, free tons	14,346	274,662	152,716	2,997,675
Bleached, free tons	1,192	19,415	15,556	270,782
Sulphite wood pulp—				
Unbleached, free tons	66,359	2,079,145	508,088	17,047,669
Bleached, free tons	27,929	1,260,245	311,046	14,727,214
Sulphate wood pulp—				
Unbleached (Kraft), free tons	33,903	1,035,966	310,659	9,818,674
Bleached, free tons	2,424	214,207	23,366	1,975,720
Soda pulp, free tons	.....	.....	1,569	65,512
Other pulp, free lbs.	21	824	179	18,127
Rags for paper stock free lbs.	7,951,190	105,814	88,434,994	1,161,315
All other paper stock, free lbs.	6,152,546	63,635	84,970,166	781,356

CHEMICALS AND OTHER PAPER MAKERS' MATERIALS IMPORTS

Articles	December, 1932 Quantity	December, 1932 Dollars	Twelve Months, Ending December, 1932 Quantity	Twelve Months, Ending December, 1932 Dollars
Colors, dyes, stains, color acids, and color bases, n. e. s., dut. lbs.	403,051	485,084	4,245,230	4,688,100
China clay or Kaolin, dut. tons	11,086	54,571	89,086	460,553
Lime and limestone, crude, dut. lbs.	3,038,604	9,000	33,301,140	106,064
Casein or lactarene, dut. lbs.	85,537	3,058	1,201,014	38,466

PAPER EXPORTS

Articles	December, 1932 Quantity	December, 1932 Dollars	Twelve Months, Ending December, 1932 Quantity	Twelve Months, Ending December, 1932 Dollars
PAPER AND MANUFACTURES	.....	1,149,535	.....	15,407,559
Printing paper—				
News print paper lbs.	1,417,335	37,227	16,927,992	447,896
Book paper, not coated lbs.	817,068	42,466	14,963,103	787,094
Cover paper lbs.	90,906	11,225	1,084,918	130,974
Greaseproof and waterproof paper lbs.	294,783	55,120	4,194,812	871,911
Overissue and old newspapers lbs.	18,101,006	124,598	209,151,107	1,472,722
Wrapping paper lbs.	1,479,689	172,358	19,260,320	1,317,011
Surface-coated paper lbs.	599,374	73,145	6,060,851	677,898
Tissue and crepe paper lbs.	296,038	37,885	3,676,093	554,128
Toilet paper lbs.	412,320	29,403	6,053,997	542,436
Paper towels and napkins lbs.	199,753	15,512	2,130,778	202,218
Box board (paper board and strawboard) lbs.	2,223,147	36,230	37,504,905	660,469
Bristols and bristol board lbs.	111,525	7,593	1,651,698	111,448
Other paper board lbs.	904,624	32,787	24,725,223	814,086
Sheathing and building paper lbs.	453,860	11,828	6,997,166	187,325
Fiber insulating board or bat sq. ft.	1,665,343	41,164	24,891,109	641,595
Wall board of paper or pulp sq. ft.	284,012	7,680	6,714,857	181,721
Blotting paper lbs.	163,974	12,896	1,092,594	117,036
Filing folders, index cards, and other office forms lbs.	57,571	19,916	972,047	311,256
Papeteries (fancy writing paper) lbs.	15,366	3,150	192,612	44,503
Other writing paper lbs.	974,390	63,675	12,529,315	859,236
Paper hangings (wallpaper) rolls	39,649	3,915	766,182	79,885
Paper bags lbs.	825,440	37,667	8,571,418	485,158
Boxes and cartons lbs.	695,529	40,077	11,180,498	628,046
Envelopes lbs.	89,656	11,394	1,063,075	148,536
Vulcanized fiber sheets, strips, rods, and tubes lbs.	167,021	48,965	2,245,793	666,489
Cash-register and adding-machine paper lbs.	158,423	12,369	4,898,065	354,666
Other paper and paper products	.....	159,290	.....	2,111,816

PAPER BASE STOCK EXPORTS

Articles	December, 1932 Quantity	December, 1932 Dollars	Twelve Months, Ending December, 1932 Quantity	Twelve Months, Ending December, 1932 Dollars
PAPER BASE STOCKS	.....	224,974	.....	2,707,277
Pulpwoods cords	784	4,533	28,405	177,327
Wood pulp—				
Sulphite wood pulp tons	3,759	193,408	40,944	1,962,538
Soda wood pulp tons	27	2,196	1,104	65,331
Other wood pulp tons	.....	.....	685	9,684
Rags and other paper stock lbs.	3,324,713	24,837	73,922,728	492,397

PAPER AND PULP MILL MACHINERY EXPORTS

Articles	December, 1932 Quantity	December, 1932 Dollars	Twelve Months, Ending December, 1932 Quantity	Twelve Months, Ending December, 1932 Dollars
Paper and pulp mill machinery	.....	44,330	.....	695,986

Unique Paper Container Patented

FULTON, N. Y., March 13, 1933—A new kind of a container has been invented by Wilbur L. Wright of this city, who has just been awarded a patent. The invention comprises a paper bottle with a flexible, collapsible liquid carrying bag depending within it and several patentable features are allowed. Application for the patent was made in 1929 and rights are given to the Oswego Falls Corporation.

Waste National Convention Postponed

Because of the unsettled banking situation throughout the country, President George Birkenstein after consulting, in so far as possible, members of the board of directors, has authorized the cancellation of all present arrangements for the convention of the National Association of Waste Material Dealers, Inc., its divisions and affiliated associations, which was to have been held at the Hotel Sherman, Chicago, from March 13 to 15 inclusive. Arrangements will be made to have the annual meeting of the association postponed to some future date, at which time the very fine program already planned will be carried out.

The president, officers, and directors of the association declare that they have every confidence that the action already taken by the government and such other steps as may be taken will result in a safe and sound financial situation for all. Never in the history of the industry has there been a time when integrity and confidence in the concern with whom one is dealing, are so essential. Every facility of the association will be available in these times to assist those concerns who are entitled through past performances to credit.

Obituary

William Robertson

[FROM OUR REGULAR CORRESPONDENT]

RENSSELAER, N. Y., March 13, 1933—William Robertson, general manager of the Papermakers Chemical Company, died last week at his home in Albany after an extended illness. He was a native of Scotland but had resided in this country since early youth. He was connected with the paper industry all his life and gained a reputation for being an authority on such subjects. Several years ago he founded the Empire Size and Chemical Company, which finally became known as the Papermakers Chemical Company and the business has prospered. He was actively identified with a number of civic and fraternal organizations.

William W. Snyder

[FROM OUR REGULAR CORRESPONDENT]

COHOES, N. Y., March 13, 1933—William W. Snyder, for many years prominent in the paper box manufacturing industry of this section, died last week at his home here following an illness of several weeks. The deceased started in the paper board and box manufacturing business many years ago when he formed a partnership with the late Jacob Leversee, the firm operating under the name of Leversee & Snyder. For the past several years the business has been conducted under the sole management of Mr. Snyder. He was also prominent in educational affairs for many years.

A. C. S. Cellulose Chemistry Division Papers

The Cellulose Chemistry Division of the American Chemical Society will meet at the Willard Hotel, Washington, D. C., March 26-31, 1933. Among the papers to be presented are the following:

1. Calibration and Standardization of Glass Spheres for Falling Ball Viscosity Determinations, with Especial Reference to Cuprammonium Solutions of Cellulose, by L. S. Grant Jr. and W. M. Billing.
2. Sorption of Water by Cellulose, by S. E. Sheppard.
3. Studies on Regenerated Cellulose, by S. S. Kistler and Howard Smith.
4. Hydration and Beating of Cellulose Pulp by W. Boyd Campbell.
5. Influence of Beating and of Chemical Treatment of the Raw Material before Beating upon the Hydration of Cellulose, by Engelbert Krichels and Jessie E. Minor.
6. Alpha Cellulose from Farm Wastes, by Mrs. Mary T. Kanagy, H. A. Hamm and S. F. Acree.
7. X-Ray Method for the Quantitative Estimation of Crystal Orientation in Cellulose Fibers, by W. A. Sisson and G. L. Clark.
8. Recent Developments Relating to Surface Properties of Cellulose Fibers, by H. DeW. Smith.
9. Holocellulose, the Total Carbohydrate Fraction of Extractive-Free Wood: Its Isolation and Properties, by G. J. Ritter and E. F. Kurth.
10. Dyeing of Cellulose in Relation to the Structure of the Material by R. E. Rose.
11. Resin Acids of American Turpentine Gum. I. The Preparation of the Pimaric Acids from Pinus Palustris, by S. Palkin and T. H. Harris.
12. The Mechanism of Ethylene Oxide Polymerization: Its Relation to Plant Synthesis and the Properties of Cellulose, by S. Z. Perry and Harold Hibbert.

American Cyanamid and Chemical Corp. Joins TAPPI

The most recent company to become a member of the Technical Association of the Pulp and Paper Industry is the American Cyanamid and Chemical Corporation of 535 Fifth Avenue, New York.

The American Cyanamid and Chemical Corporation came into existence on July 1, 1932, a consolidation of the activities formerly carried on by the following companies:

American Cyanamid Company (Industrial Chemical Division), American Cyanamid Sales Company, The Kalbfleisch Corporation, A. Klipstein & Company Inc., John C. Wiarda & Company Inc., Superior Chemical Company Inc., Fumigators Supply Company, American Powder Company, The Selden Company, Owl Fumigating Corporation, The Kalbfleisch Corporation of Surinam.

The president of the Corporation is Harry L. Derby and the vice-president in charge of sales is P. M. Dinkins. E. Y. Burckhalter is in charge, as manager of the Paper Chemicals Division. All are well known to the pulp and paper trade throughout the country due to their former association with The Kalbfleisch Corporation.

The principal articles manufactured by the American Cyanamid and Chemical Corporation applicable to the pulp and paper industries are the following: sulphate of alumina, rosin size (liquid and dry), satin white, casein, clays (domestic and imported), salt cake, waxine sizes and alwax sizes.

E. Y. Burckhalter will represent the corporation in the Technical Association.

Indianapolis Marking Time

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, IND., March 14, 1933—It is not believed that the present situation will have much effect on demand for building papers this spring. It is felt something like normal business will have been resumed before the opening of the spring season and that demand will become brisker than it has been for the last two seasons. The member building and loan companies of the home loan bank are receiving money to be lent for repair and remodeling work and much of this will be in circulation during the spring season.

In most other lines the industry is marking time. The container factories report some demand against the coming of spring and the summer specialty dealers report inquiries, but thus far little business. Cold weather during the last week did much to slow down this business. In the wrapping paper and bag line, business was very dead during the week. The large department stores reported virtually no business at all due to the moratorium and this was reflected down to the smaller stores.

Newsprint demand is slow. Prices are weak and there is a tendency to cut if there is any assurance of fair sized contracts. Paper stock men are disgusted with the general situation. Mills last week took small quantities, but paying prices showed softness.

Northern Paper Mills Report

APPLETON, Wis., March 10, 1933—Net losses of $94,359 in 1932 were reported in the consolidated preliminary report of the Northern Paper Mills, Green Bay, Wis., issued last week. The loss, after all charges, compares with a net profit of $107,322, equal to 86 cents a share on 78,658 shares of common stock, in 1931. Current assets December 31 totaled $1,631,210 and current liabilities $722,342, compared with $2,420,926 and $1,117,444, respectively, a year previous.

New York Trade Jottings

Robert Bell-Irving, assistant general manager of the Powell River Company, Ltd., of Powell River, British Columbia, is a New York visitor this week.

* * *

Riegel Paper Corporation, of 342 Madison Avenue, New York, has issued an attractive folder containing samples of Riegel's 20th Century Bristol in blue, russett, green, brown, red, white, goldenrod, gray, black, canary and salmon.

* * *

West Virginia Pulp and Paper Company, with offices at 230 Park Avenue, New York, has issued an artistic sample portfolio of Clear Spring papers, including examples of Clear Spring Text Wove, white and india watermarked; Clear Spring Text Laid, white and india Clear Spring English Finish Book, white and india; and Clear Spring Super Calendered Book, white.

* * *

The business conducted for many years by the co-partnership of Schorsch & Co., manufacturers of paper bags and sacks, of 500 East 133rd street, New York, was recently transferred to Schorsch & Co., Inc., a New York State corporation. Henry Kurniker, Jacob E. Schorsch and Emanuel I. Schorsch, the members of the partnership, continue to be principals and will actively participate in the management of the corporation as officers and directors thereof. Henry Kurniker is the president, Jacob E. Schorsch the treasurer, and Emanuel I. Schorsch the secretary of Schorsch & Co., Inc.

* * *

W. A. Thomson, Director of the Bureau of Advertising of the American Newspaper Publishers' Association, was the guest speaker at the regular weekly luncheon and meeting of the Eastern Division of the Salesmen's Association of the Paper Industry, held at the Hotel Roosevelt, New York, on Monday last. He discussed "Trends of Advertising in the Newspaper and Periodical Fields." Mr. Thomson said that he anticipated an upward movement in commodity prices and expressed optimism born of logic regarding the future. He declared that the expected upturn is bound to increase the volume of newspaper advertising in a big way. At the close of Mr. Thomson's remarks he was accorded a hearty vote of thanks from a large and enthusiastic gathering of members and guests.

Norwegian Paper and Pulp Operations

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., March 1, 1933—The Norwegian paper and pulp industry faced its full share of difficulties last year, according to a report from Commercial Attache M. H. Lund at Oslo, which, among other adverse factors, mentions the fact that the suspension of the gold standard in the fall of last year did not result in rising prices and inflation of values as expected.

It had, in fact, he points out, rather the opposite effect in so far as world prices were concerned, while the domestic price level remained practically unchanged. Exports were large in volume, especially when taking into consideration that the world consumption has declined, and prices expressed in crowns were about the same. So far, practically no annual statements have been published to indicate whether individual plants were able to make a profit. It is assumed that the operations were not profitable, but the wheels have been kept turning, which must be considered satisfactory under present conditions.

Paper on Parade at The Fair

CHICAGO, Ill., March 13, 1933—One of the busiest offices in the local trade is the headquarters of the Paper Foundation, in the Conway Building. Here a staff of secretaries is hustling all day long getting out data, and answering inquiries from interested mills and converters throughout the industry, regarding the great Paper Exhibit at A Century of Progress World's Fair. Phil A. Howard, president, is dividing his time between directing their activities and formulating and describing to callers the elaborate plans under way to round out a complete exhibit of every grade of paper and the almost endless variety of paper specialties.

"You will be interested to know" said Mr. Howard, "that in our individual mill display section, paper mills making rag content, sulphite bond and specialties, book papers, towels and napkins, plates and containers, and tissues, and dozens of paper converted articles have already signed up for one or two units of space each. The two largest paper manufacturing corporations in the country have just closed for space, together with all of the largest tissue paper mills in Green Bay, Wis. These, with many from other parts of the country, bring assurance that our great industry is now accepting the challenge and paper will be in the front ranks of the parade of industries at A Century of Progress, June 1 to November 1."

"This paper exhibit undoubtedly offers the trade the finest opportunity for constructive publicity, and on a scale never before available," states Mr. Howard. "Here will be shown the latest in paper utilities for home, store, office and factory. Paper umbrellas, paper caps with expanding hat band, and other unusual paper items will open the eyes of millions to the unlimited uses of paper. That the Paper Exhibit at A Century of Progress will help materially in elevating the paper industry to its rightful position among the essential industries of the world, and so attract new tonnage, is a foregone conclusion.

"Time is of vital importance" said Mr. Howard, "mills and converters should act quickly in order to take advantage of the individual unit paper mill section."

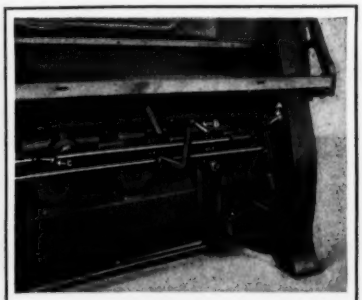
Use of Bennett Process Expands

With the number of processes for making rosin wax sizing and the equipment incidental for use in connection with same, it is remarkable to note the vast quantity of paper and board which has been sized with one or the other of the various processes now on the market. Messrs. Bennett, Inc., of Cambridge, Mass., who introduced their process about five years ago, has just issued a statement showing that during 1932 over 296,000 tons of different grades of paper and board were sized by their process, more than quadruple of the tonnage so produced in 1927. This would be considered an unusual situation in view of the business conditions.

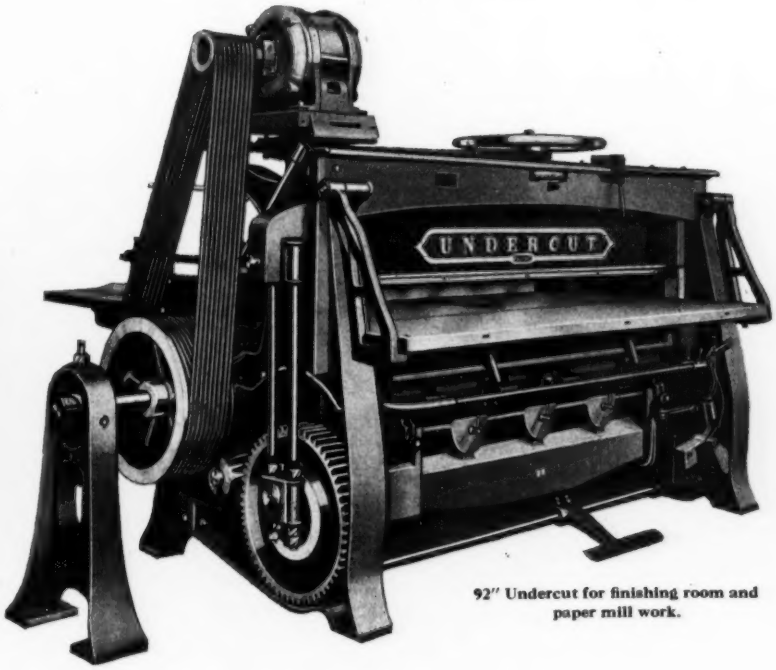
Superintendents to Convene

APPLETON, Wis., March 10, 1933—An attendance of seven hundred superintendents from all parts of the United States and Canada is expected at the convention of the American Pulp and Paper Mill Superintendents Association at Green Bay, Wis., June 8, 9 and 10, according to reports made to the general convention committee at a meeting this week. The closing banquet will be made one of the most outstanding events, and the choice of the speaker probably will be announced this week. One day will be devoted to addresses, another to discussion and a third to inspection of mills and recreation.

At the time of *the cut*—



2 throws of the starting lever in opposite directions before the knife starts. Both hands off the cutting table.



92" Undercut for finishing room and paper mill work.

No ACCIDENTS with an S & W Undercut Trimmer.

Dual Control, developed by Smith & Winchester engineers, keeps *both hands* below the table at the time of the cut, absolutely prevents all accidental starts and makes it possible to work with fewer motions. The new S & W Undercut Trimmer can not repeat and the knowledge of complete safety results in better and faster work by the operator.

A positive drive (not a friction drive) and a clamp whose pressure on the stock automatically varies with the resistance of the stock against the knife, prevents slippage, provides a straight, accurate, square cut.

Less spoilage, less power consumption, greater production, lower costs and complete safety are only a few of the advantages of the S & W Undercut Trimmer. A new Bulletin tells the complete story. Send for your copy today.

* * *

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Henry J. Berger
Editor

Ronald G. Macdonald
Editor Technical Section

Herbert J. Laughton
Associate Editor

Thomas J. Burke, C. A.
Editor Cost Section

Lynne M. Lamm,
Washington Correspondent

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CONFIDENCE RETURNS

History is in the making. Reminiscent somewhat of the period of the World War, great black letters clear across the front pages of the various editions of the daily papers, blazen the rapid steps that the government in Washington has been taking to straighten out the economic tangle. Bold measures these have been, but courageous measures were needed in times of danger such as these days have indubitably been. And these steps are succeeding. Fear has largely been allayed and confidence is rapidly succeeding the dread that only recently was stifling the business system.

President Roosevelt during the past week and a half has won admiration pretty generally from all classes of people regardless of political affiliations. The press and the people, regardless of politics, have been generous in their praise of his action in meeting an emergency truly grave in its character. Precious as blood to the human system, gold now is flowing back into the Federal financial system, hoarded currency is being returned to the vaults of the banks, the Economy Bill, absolutely needed to balance the budget, is assured of passage and other remedial measures required to insure the well being of the nation as a whole give promise of being rapidly passed in spite of organized and aggressive minorities no matter how powerful they have been even in the recent past.

Under these influences, the outlook has vastly improved. A betterment in business is bound to follow because with the banking structure secure and the budget balanced, or likely to be reasonably soon, the arteries of trade will in the course of time function normally again. Naturally, this will not happen immediately because in spite of the bewilderingly rapid action of the President and Congress, miracles cannot be expected. But the most dangerous point in the depression is over and a sub-structure has been built on which the country may safely establish and develop a new economic system just as it has done a number of times in the past in our comparatively brief history as a nation, even after depressions just as severe or perhaps more so than the present one had reached their nadir.

PAPER FOLDING TESTER STUDIED

The folding endurance test of paper is at present used as the main criterion of its ability to withstand handling, and wear and tear in general. Unfortunately this test is particularly tricky, partly owing to the wide variations in the actual folding endurance of the small cross sections of paper tested, and partly because of variables in the testing instruments that affect the folding values.

Because of the importance of this form of test, the Bureau of Standards has made considerable study of the testing machine variables to assist in minimizing their effect as far as possible. It has recently completed such study of the M. I. T. folding tester, which is much different in design from the older form of tester, the Schopper. The results of a somewhat similar study of the latter have been published by the Bureau.

In the M. I. T. tester, a narrow test specimen is held under spring tension at one end and is folded near the other end over the rounded jaws of an oscillating clamp, It was found that variations in tension had a considerable effect on the folding values and apparently that correct curvature of the small surfaces over which the paper is bent is particularly important, since variations in this respect affect both the constancy in tension and the severity of the fold. Because of the simplicity of the design of this instrument, the number of variables that affect the folding values are comparatively few.

Comparative tests were made on a variety of papers with the M. I. T. tester and the Schopper tester and no correlation between the two sets of folding values was found, except that the M. I. T. values were always much the lower.

RENOVIZING POWER AT CHICAGO

Engineers attending the 6th Midwest Engineering and Power Exposition at Chicago during the week of June 25th to 30th will find a new word for their vocabularies which comes from Philadelphia. "Renovizing" power will be the theme of the exposition, or in plain English "repair, remodel, and restore" power plans utilizing today's improved equipment and supplies.

This exposition will be one of the features of a week which will see the greatest gathering of engineers ever held in this country. Twenty engineering organizations have already perfected plans for their conventions at Chicago. The combined membership of these groups is over 100,000.

Leaders in the paper industry will discuss the specific problems of their industry in relation to present day condi-

tions with the idea of outlining practical plans for rehabilitation or "renovizing" as a good business proposition. The Century of Progress will add mental stimulation because of its presentation of widely diversified modern scientific and industrial achievements.

Bids and Awards for Government Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., March 15, 1933.—The Government Printing Office has received the following bids for 2,000 pounds of No. 1 gummed kraft paper: Charles G. Scott & Co., Inc., at 6.56 cents per pound; Lindemeyr Paper Company, 5.96 cents; R. P. Andrews Paper Company, 7.1 cents; Mathers-Lamm Paper Company, 7.05 cents, 7.08 cents, 9.18 cents, 8.4 cents and 5.78 cents; Walker Goulard Plehn Company, Inc., 7.125 cents less 1 per cent; Whitaker Paper Company, 5.75 cents; W. L. Jones, Inc., 6.5 cents; and Old Dominion Paper Company, 8.4 cents.

The following bids were also received for 5,000 sheets of mourning letter paper; R. P. Andrews Paper Company, at $22.00 and $38.00 per M sheets; Z. & W. M. Crane, Inc., $24.40; Whitaker Paper Company, $17.00; Barton, Duer & Koch Paper Company, $20.55, $22.25 and $19.25; Major Paper Corporation, $15.80; M. G. Farley, $31.90 less 2 per cent.

Lay-offs and Cuts for Abitibi

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., March 13, 1932—Following readjustment of the Abitibi Power and Paper Company staff at Iroquois Falls, Ont., about twenty employees have been laid off, either temporarily or permanently, and others with monthly wages of more than $100 will have cuts of from 10 per cent up. Salary reduction will apply to office and plant employees, but not union workers. At the same time the company has announced downward revision in house rents of from 20 to 40 per cent and a cut in electric lighting and power cost to employees of 40 per cent. G. T. Clarkson, receiver and manager of the Abitibi Power and Paper Company, said at the head office in Toronto, that there had been a moderate reduction in salaries at the Iroquois Falls plant and the services of some employees not required had been dispensed with. In addition to these changes some of those employed at the Toronto head office would be moved to the plant at Iroquois Falls, he declared.

Savannah Ready to Welcome Paper Makers

In anticipation of the visit of a large number of pulp and paper mill executives from the North, the members of the Georgia Forestry Association and the citizens of Savannah, Georgia, are making special preparations to extend Southern hospitality in every sense of the word to their guests. Such preparations are being made in consideration of the fact that many are planning to combine business with pleasure and are bringing their wives along.

Evening entertainment, sightseeing tours and golf will be provided to entertain the visitors who will have a very crowded program discussing papers on the technical, economic and industrial aspects of a new low cost white paper industry in the Southeast.

The pulp and paper research mill and laboratory of the State of Georgia will be kept in full operation grinding pine and cooking pines by the sulphite process in the new unlined chrome-nickel-iron digester. The Pusey & Jones Corporation paper machine will be turning out white papers throughout the period of the meeting.

Invitations have been sent to the American Paper and Pulp Association, the Technical Association of the Pulp and Paper Industry, the American Pulp and Paper Mill Superintendents Association, the News Print Service Bureau and the Canadian Pulp and Paper Association and its Technical Section.

The City of Montgomery, flagship of the Savannah Line, has been chartered to take the paper makers and their friends on the cruise starting at 4:00 p.m. Friday, April 28th. For but $25 per person the steamship company is furnishing round trip transportation, stateroom and meals, and the De Soto Hotel in Savannah is offering a special low rate of $2 for single rooms and $1.50 per person for double rooms.

Visits will be made to inspect the Georgia Pulp and Paper Research Laboratory, turpentine wood operations, reforestation projects and other places of interest.

A number of reservations have already been received. Anyone interested can join the party. Reservations may be made through R. G. Macdonald, Secretary of the Technical Association of the Pulp and Paper Industry, 370 Lexington Avenue, New York.

Builds First Paper Mill for Lithuania

The first paper mill in Lithuania was completed last month by the Swedish Match Trust in exchange for the Lithuanian match monopoly, according to a report to the Commerce Department from Commercial Attache Lee C. Morse, Riga, Latvia.

The new mill is equipped to produce 6,000 metric tons of paper, chiefly news print, annually, which will leave a margin of 2,000 available for export, it was stated.

At the outset an annual production of 4,000 metric tons of news print and cheap grades of writing paper is planned. Raw material of local origin, will be used.

The Lithuanian Government plans to increase the import duty on paper in order to protect the new mill from foreign competition.

May Abolish Paper Division

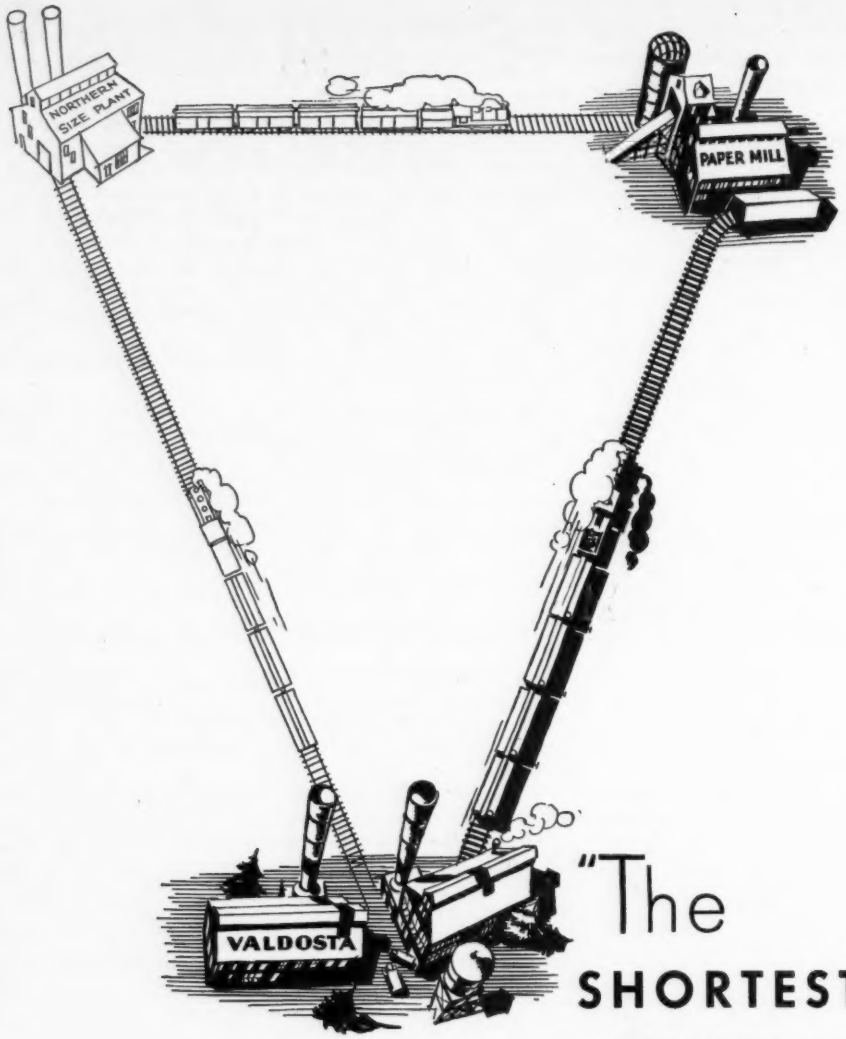
WASHINGTON, D. C. March 15, 1933.—There is considerable conjecture here as to what President Roosevelt is going to do in connection with the reorganization of the Department of Commerce of which Daniel C. Roper is now Secretary.

Rumors have been afloat for a long time, apparently from good sources that the Department will be made consiberably smaller than it has been under the Hoover administration. One of the rumors is to the effect that the Paper Division, handling paper information may be abolished with other commodity divisions which were set up under the Hoover regime. To this time, however, nothing authentic has been made public.

Lake States TAPPI Meeting Postponed

Because of the bank holiday it was considered advisable to call off the meeting of the Lake States Section of the Technical Association of the Pulp and Paper Industry scheduled for March 14th at Appleton, Wisconsin.

The speakers were to have been J. P. Strasser of the Stein, Hall Manufacturing Company and H. B. Johnson of the Link-Belt Company. Both speakers will be heard at a later meeting.



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535 Fifth Avenue, New York

Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

Confidential Disclosure Of An Invention*

"Having regard to the latter factor, as well as to the irregularity of industrial operations earlier in the season, it is gratifying to note that the general employment situation has not deteriorated as much as a year ago; in fact, the latest official report shows comparative stability in the large field which it covers."

As has been pointed out,[1] an inventor, who chooses to practice his invention as a trade secret instead of availing himself of the protection afforded by the patent laws, may resort to the courts to protect his secret against any one who has gained it by dishonest or unfair means. And this is so whether or not the secret is of such a nature as would have entitled its discoverer to a patent had he made timely application therefor. Inventors generally will be pleased to learn that this protection of the courts extends also to inventions which have been disclosed in confidence to prospective purchasers or licensees. Illustrations of how far some courts will go in protecting an inventor who has disclosed his invention in confidence to a prospective purchaser or licensee are furnished by the decisions in the cases of Shellmar Products Co. v. Allen-Qualley Co., 36 Fed. Rep. (2nd) 623, and Booth v. Stutz Motor Car Co., 13 U. S. Pat. Q. 12.

The facts of the Shellmar case are as follows: The Allen-Qualley Co. (the plaintiffs), a firm of candy manufacturers in St. Paul, had devised a new form of transparent wrapper for candy and had also developed a machine for making and cutting the wrapper ready for printing. They disclosed the invention in confidence to the Shellmar Co. (the defendants), who are printers specializing in candy wrappers, with a view toward selling them a license to use the invention. No patent application had as yet been filed. A partial verbal agreement was entered into by the parties, but before it was completed and reduced to writing the Shellmar Co. instructed their attorneys to investigate the patent situation and had an employee design a similar machine. Upon the advice of their attorneys, they bought a patent for $1000.00 which appeared to dominate the plaintiff's invention and broke off negotiations. Upon this state of facts, the court held that the defendant had violated the plaintiff's confidence and right to secrecy.

The defendants were, therefore, ordered to resell the patent to the plaintiffs (Allen-Qualley Co.) for $1000.00 in order to undo as far as possible the harm they had done by the breach of confidence.

The facts of the Booth case are as follows:

Booth designed an automobile having a chassis and driving mechanism so constructed as to enable the floor of the car to be placed considerably closer to the road surface than had previously been the commercial practice. In an effort to interest the Stutz Co. in securing the rights to his invention, he submitted complete plans to its engineering department. The plans were carefully studied and Booth was informed that the company could not utilize his invention because it had other plans which could not be sacrificed. However, the company later placed a car on the market which incorporated the chief features disclosed in Booth's plans. The new Stutz car was an immediate success and enabled the company to wipe out a large deficit of the previous year. Booth secured a patent and brought suit not only on his patent but also on the ground that the company had violated his confidence by appropriating his designs without compensation. After a careful consideration, the court decided that Booth's design of car did not constitute a patentable advance over the art and that his patent was therefore invalid. But the court went on to state that Booth's right to recovery was not limited to his patent but he was entitled to recover to the extent that his designs contributed to the success of the Stutz car as well as to the extent that he had been harmed by the inequitable appropriation of his ideas.

These cases were both decided by the Court of Appeals of the Seventh Circuit, whose jurisdiction is confined to the States of Illinois, Indiana and Wisconsin. There is some doubt as to whether the courts of the other nine circuits will go as far as these two decisions indicate, but inventors may feel fairly safe that their rights will be protected against unscrupulous people who seek to appropriate their inventions through a breach of confidence. However, inventors are most earnestly advised to keep complete records of their research work as well as of all dealings with prospective purchasers. A subsequent bulletin will be devoted to the keeping of research records. Furthermore, inventors must take prompt action to enforce their rights, for courts of equity will not aid a complainant who has slept on his rights.

Correction

In the PAPER TRADE JOURNAL of February 16, 1933, page 85, first column, line 9 should read "The Brown Instrument Company," instead of "The Republic Flow Meter Company."

* This is contribution 18 from the Patents Committee of the Technical Association of the Pulp and Paper Industry, C. W. Rivise, chairman.

[1] Paper Trade J. 91, No. 20, 48 (November 13, 1930).

Drying Rate for Kraft Paper*

By A. E. Montgomery [1]

Abstract

The rate of drying on a paper machine is best expressed in pounds of water evaporated per hour per square foot of drying surface. Drying surface is defined to include only that of trim width and to include felt driers. Drying rate varies as a straight line function of the steam temperature within the driers. A formula allows for correcting drying rates on a machine from one steam pressure to another, or to a standard steam pressure. The change in drying rate with change in steam pressure is not the same for kraft paper as for paper board which has been studied previously. Freeness and basis weight of sheet appear to have little or no effect upon drying rate expressed in terms of paper dried, although the drying rate expressed in terms of water evaporated is diminished with increased weight of sheet. Drying rates for kraft paper vary widely, that of the best practice being twice that of the poorest practice at the same steam pressure.

Introduction

Frequently mill men express an opinion that a particular machine is drying "as much paper per square foot of drying surface as any machine in the country," but they perhaps would be at a loss to explain just why that particular machine should do better than others. What factors should be considered, and what weight should be given these factors in comparing one machine with another?

The need exists for an evaluation of paper machine drying rates on different grades of paper and board, to that end that one may be enabled to say definitely what constitutes good, fair, or poor practice under any given conditions of paper machine, type of sheet, steam pressure, moisture content, or the like.

Last year this committee made a survey of board mills and evaluated the drying rates for paperboard produced on cylinder machines. *(3)* This year we undertook to study kraft and news, and the data presented is the result of questionnaires sent to United States kraft paper mills. Some of the mills contacted with cooperated in an encouraging manner, while others were dishearteningly indifferent. Sufficient accurate data was accumulated, however, to enable us to develop our conclusions as being fairly accurate and correct.

It is hoped that a similar report on news and other grades of paper may be made at a later date. The data on news print should prove particularly enlightening because of the relatively standard furnish and weight. This work can be carried on only with the cooperation of the mills concerned.

Definition of Drying Rate

Drying rate as used here is the ratio of pounds of paper dried or pounds of water evaporated compared with the drying surface. Obviously, drying surface is subject to various definitions.

Sometimes only that arc of the drier in actual contact with the paper has been considered: we believe there is a technical argument against this method of figuring, but still more important is the added complication for figuring the drying rate on this basis. We have, therefore, used the entire circumference of the driers. Felt drier surface is considered for our purposes as of equal value to the regular driers and is included.

To eliminate the effect of drier width and trim, and to simplify the calculations, drying surface is calculated per inch of width, then only speed and weight of sheet become the other variables.

Drying rate may be expressed in terms of paper dried or water evaporated, and is defined as the pounds of paper dried or pounds of water evaporated *per hour per square foot of total paper and felt drying surface covered by the width of the sheet.*

Calculation of Drying Rate from Paper Machine Data

The formula as given by Stamm *(3)* is correct for drying rate expressed in terms of water evaporated, or for convenience it may be broken up as follows:

The total drying surface per inch of width,

(1) $S/W = 0.0218\ (N_P\ D_P + N_F\ D_F)$

Where N_P and D_P represent respectively the number and diameter of the paper driers, and N_F and D_F represent respectively the number and diameter of the felt driers.

The drying rate expressed in pounds of paper dried per hour per square foot of drying surface,

(2) $$R_P = \frac{\text{Speed} \times \text{Weight}}{S/W \times K}$$

Where:

Speed = Speed of machine in feet per minute.
Weight = Standard ream weight of sheet.
K = A constant depending on the ream size, and which for various grades is as follows:

Board	= 200	Based on weight per 1,000 square feet.
Board, bristol and tag	= 445	Based on 22½ x 28½—500.
Board, card	= 428	Based on 22 x 28—500.
Book	= 660	Based on 25 x 38—500.
Blotting	= 317	Based on 19 x 24—500.
Cover	= 361	Based on 20 x 26—500.
News	= 600	Based on 24 x 36—500.
Tissue	= 400	Based on 20 x 30—480.
Wrapping	= 576	Based on 24 x 36—480.
Writing	= 260	Based on 17 x 22—500.

For calculating pounds of water evaporated per pound of paper dried the writer has found the following formula most convenient and easily remembered:

(3) $$W = \frac{\text{B.D.}}{\text{O.D.}} - 1$$

where the B. D. above the line represents the per cent oven dry of the sheet leaving the driers (the larger figure) and the o.d. below the line the per cent bone dry weight of the sheet entering the driers (the smaller figure). Tables having the values calculated are common.

The drying rate expressed in pounds of water evaporated per hour per square foot of drying surface then becomes,

(4) $R_W = R_P \times W$.

The calculations, using the foregoing formulas, will be found very easy to apply on any machine.

Effect of Steam Pressure on Drying Rate

Figs. 1 and 2 show the drying rates for kraft paper machines. On Fig. 1 the drying rate is shown in pounds of paper dried per hour per square foot plotted against both steam temperature and pressure. Fig. 2 shows the drying rate expressed in terms of water evaporated. The reason more points are shown on Fig. 1 than Fig. 2 is that some mills reporting did not have the moisture content of the sheet going onto the driers.

Fig. 3 shows the data collected last year on board, and reported upon by Stamm. *(3)* It is here replotted in the same form as Figs. 1 and 2 for purposes of comparison. It is of interest that the slope of the straight line curve is less for board than for kraft, which is to say that a change in steam pressure has less effect on the rate of drying of board than it does on kraft paper.

The slope of the curve is probably influenced by several

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* Presented at the annual meeting of the Technical Association of the Pulp and Paper Industry, New York, N. Y., Feb. 13-16, 1933.
Contribution of the TAPPI Heat and Power Committee.
Note: This paper is based on a survey made by the sub-committee on Heat Utilization in Pulp Drying and in Making Paper and Paperboard.

[1] Member TAPPI, Sales Engineer, J. O. Ross Engineering Corp., Chicago, Ill.

factors. A study of this can be made more intelligently when data is available on other classes of paper.

The data at hand indicates that the drying rate may be represented by the following formulae:

(5) For board, $R_W = 0.0210\ T - C$
(6) For kraft, $R_W = 0.0300\ T - C$
(7) or $R_P = 0.0158\ T - C$

where:
R_W = Pounds of water evaporated per hour per square foot of drying surface.
R_P = Pounds of paper dried per hour per square foot of drying surface.
T = Steam temperature in deg. F. of steam at saturation at back pressure in driers,
And C = A constant for the particular machine and type of paper.

The constant, C, is indicated on each of the curves which have been drawn to represent what we arbitrarily have designated as good, average, and poor practice.

The chief value of this formula lies in that it permits of correcting the drying rates for comparison at a constant steam pressure. Naturally, steam pressure is the greatest single variable influencing drying rate. By eliminating this variable from all our data and correcting to a constant steam pressure we are able to study the effect of such variables as freeness, weight of sheet and others.

At any selected standard back pressure (and corresponding steam temperature) formula (6) may be rewritten thus

(8) R_W (Std.) = 0.0300 T (Std.) — C.

At any other pressure and corresponding temperature at which the drying rate has been found,

(9) R_W (observed) = 0.0300 T (observed) — C.

For the same machine and grade of paper the constant, C, in both formulas is identical, hence subtracting (9) from (8) and eliminating C, we have:

(10) R_W (Std.) — R_W (observed) = 0.0300 T (Std.) — 0.0300 T (observed) or
(11) R_W (std.) = R_W (observed) + 0.0300 T (Std.) — 0.0300 T (observed)

In the same way the following formula is derived to correct the drying rate when expressed in terms of paper dried.

(12) R_P (Std.) = R_P (observed) + 0.0158 T (Std.) — 0.0158 T (observed).

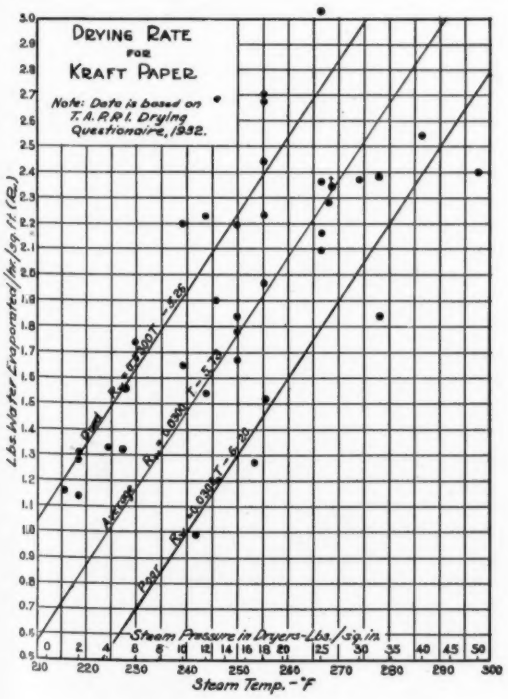
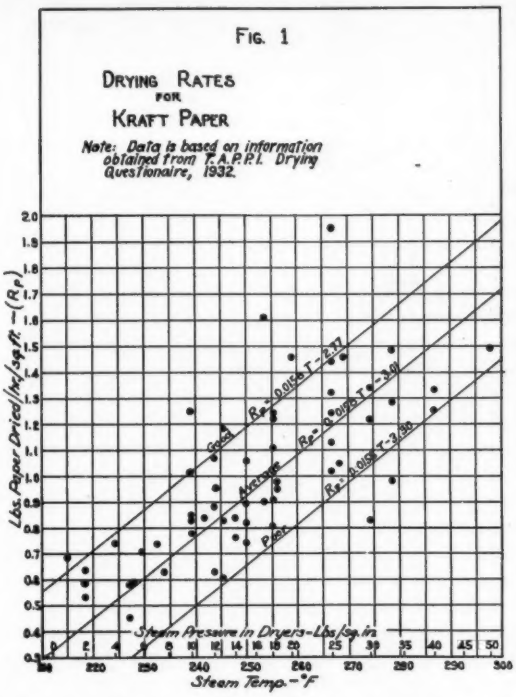


Fig. 2



For our work we arbitrarily have selected 15 pounds back pressure (250 deg. F.) as standard. To correct to this standard pressure the preceding formulas for kraft paper become:

(13) R_W (Std.) = R_W (observed) + 7.50 — 0.0300 T (observed)
(14) R_P (Std.) = R_P (observed) + 3.95 — 0.0158 T (observed.)

Effect of Weight of Sheet on Drying Rate

Lewis, McAdams and Adams, *(1)* from observations of pulp drying stated the conclusion that the thickness

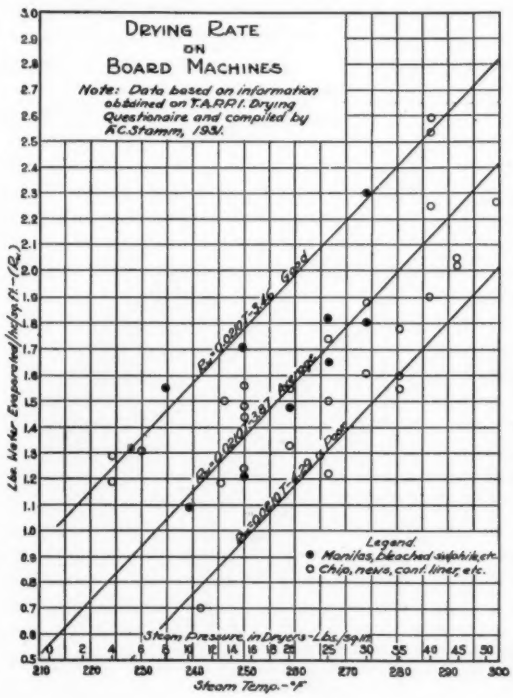

Drying Rate
on
Board Machines
Note: Data based on information obtained on T.A.P.R.I. Drying Questionaire and compiled by R.C. Stamm, 1931.
Lbs. Water Evaporated/hr/sq.ft.-(Rw)
Legend
Manilas, bleached sulphite, etc.
Chip, news, cont. liner, etc.
Steam Pressure in Dryers-Lbs./sq.in.
Steam Temp.-°F

Fig. 3

of the sheet had practically no effect on drying rate up to a point of about 55 per cent dry, but that during the last stage of drying the drying rate varied inversely as the square of the thickness. Stamm *(3)* was forced to the conclusion last year from data on board machines that the caliper could vary quite widely without materially affecting the drying rate. Our present work on kraft we believe throws additional light on this matter.

Figs. 4 and 5 show the influence of the weight of the sheet on the drying rate, expressed both in terms of paper dried and water evaporated. The drying rates are corrected to 15 pounds back pressure. From Fig. 4 it appears quite clearly that the weight of the kraft sheet makes little or no difference in the amount of paper dried per square feet per hour, R_P, although a contrary opinion is quite general among the mills.

The drying rate expressed in terms of water evaporated, Rw, however, shows a decrease with increased weight of sheet. This might be explained as due to the heavier sheet having a greater diffusional resistance to the escape of water or water vapor from the interior, and to the greater thermal resistance to flow of heat into the sheet. If these factors were the deciding ones the drying rate R_P would likewise be affected. Our conclusion is that for kraft paper the heavier sheet shows a lower value of Rw simply because, on the average, it has less water to be evaporated per pound of paper. This is demonstrated as a fact by the data plotted on Fig. 6 which is included here for the interest it may have as showing average practice among kraft mills.

An interesting observation in this connection is that on a Yankee drier, where very high drying rates are obtained, Wertheimer *(4)* has shown that the drying rate, Rw, is much greater on a light sheet than on a heavy one, the influence of sheet weight being far more pronounced on the Yankee.

Effect of Freeness on Drying Rate

The questionnaires sent to the mills asked that the sheet on which data were submitted be indicated as either free, medium, or slow. On Figs. 4 and 5 and 6 the freeness is indicated. We are unable to detect that it has any appreciable effect on the drying rate, although Fig. 6 does seem to show that the slower sheets are wetter going onto the driers.

Effect of Size of Machine on Drying Rate

It is frequently stated that as high a drying rate cannot be obtained on a large machine as on a small one. It is to be remembered that drying rate as defined and

FIG. 5

EFFECT OF WEIGHT OF SHEET ON R_W FOR KRAFT PAPER

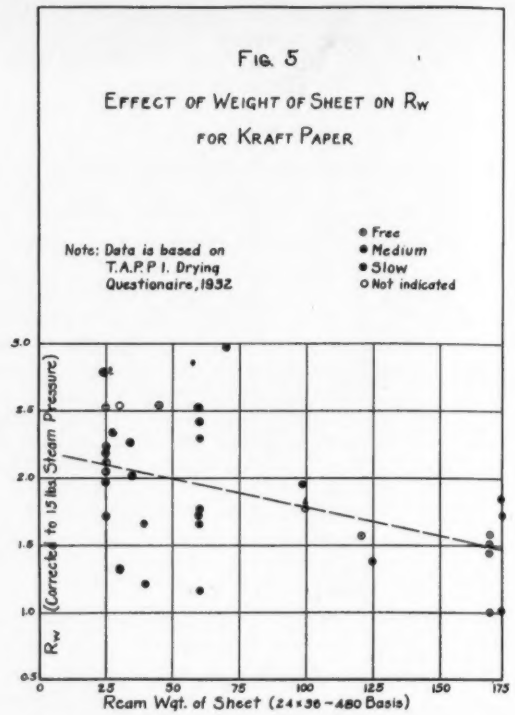


FIG. 4

EFFECT OF WEIGHT OF SHEET ON R_P FOR KRAFT PAPER

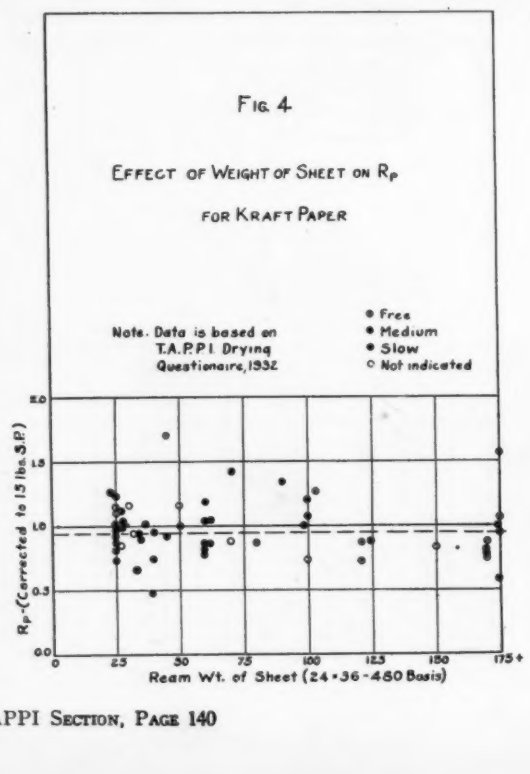
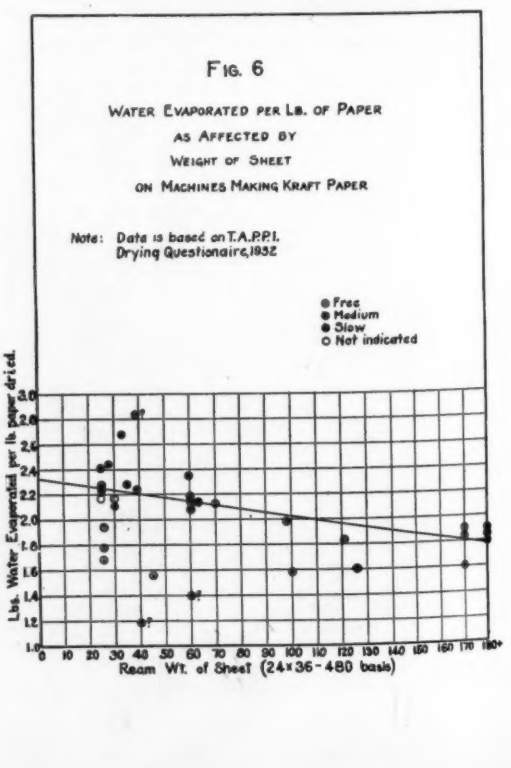


FIG. 6

WATER EVAPORATED PER LB. OF PAPER AS AFFECTED BY WEIGHT OF SHEET ON MACHINES MAKING KRAFT PAPER



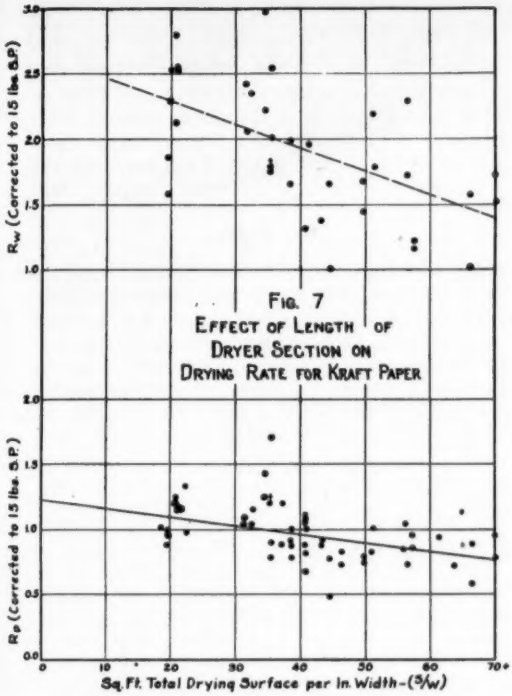


FIG. 7
EFFECT OF LENGTH OF DRYER SECTION ON DRYING RATE FOR KRAFT PAPER

used here eliminates differences due to loss in trim; we are considering only the "length" of the machine or, more exactly, the square feet of total drying surface per inch of width.

Fig. 7 shows RP and RW, corrected in each case to the standard 15 pounds back pressure, plotted against total drying surface per inch of width. We interpret this figure to indicate that the length of the machine does have an effect on the drying rate, which is lower for the longer, and hence faster, machines. We are unable to give a satisfactory explanation as to why this should be so.

The most important factors affecting drying rate not mentioned in the foregoing are (1) moisture content entering and leaving the driers, (2) conditions of drier surface, (3) effectiveness of drainage system, (4) hooding of machine and air condition surrounding the driers, and (5) the use of special air systems for increased drying capacity.

Stamm *(3)* and others have pointed out particularly the effect on drying rate of the moisture content leaving the driers. We believe this factor is not generally appreciated.

The questionnaires submitted have information on the condition of the drier surface, the condition of drainage, and the type of hood. These are factors, however, impossible to evaluate from our data.

Several of the machines reported on have special air systems such as the Ross-Grewin or felt-drying systems. These are known to increase drying capacity by as much as 10 to 20 per cent, or even more. This effect of air on drying rates has been well presented in previous papers. *(1)* and *(2)*.

All of these factors acting together explain the variations in drying rate whereby one machine may achieve twice the drying rate observed on other machines.

Nomenclature

O.D. = Per cent by weight of sheet represented by oven dry stock.
C = Constant.
D_F = Diameter in inches of felt driers.
D_P = Diameter in inches of paper driers.
K = Constant.
N_F = Number of felt driers.
N_P = Number of paper driers.
R_P = Drying rate expressed in pounds of paper dried per hour per square foot of drying surface.
R_W = Drying rate expressed in pounds of water evaporated per hour per square foot of drying surface.
S/W = Total drying surface per inch of width.
T = Temperature of steam in degrees Fahr. at saturation at back pressure in driers.
W = Pounds of water evaporated per pound of paper dried.

Literature Cited

(1) Lewis, W. K., and McAdams, W. H., and Adams, F. W. Paper Trade J. *84*, No. 18:61-67 (T. S. 250-56), May 5, 1927.
(2) Sherwood, T. K., Paper Trade J. *88*, No. 8:134-136, Technical Association Papers, Series XII, 1929:12-14.
(3) Stamm, F. C., Paper Trade J. *94*, No. 17:42-4 (T. S. 227-9) April 28, 1932. Technical Association Papers, Series XV, 1932, 208-10.
(4) Wertheimer, R. S., Paper Trade J. *94*, No. 5:49-50 (T. S. 53-4) Feb. 4, 1932. Technical Association Papers, Series XV, 1932:241-42.

Alpha Cellulose in Pulp*

Comments on the Official Standard Testing Method of the Technical Association of the Pulp and Paper Industry

By William R. Willets[1]

Abstract

A number of members of the Technical Association were asked to comment on the official TAPPI method for the determination of alpha cellulose in pulp.

These comments together with those of the author are given and a number of proposed changes in the official method are submitted.

Acknowledgment

Numerous suggestions and criticisms have been made regarding the Technical Association's method for the determination of alpha cellulose in pulp. The writer is indebted to the following for their comments, herein discussed.

B. W. Scribner, U. S. Bureau of Standards.
R. C. Griffin, Arthur D. Little Inc.
W. M. Shoemaker, National Vulcanized Fibre Company
H. F. Lewis, Institute of Paper Chemistry.
G. K. Hamill, U. S. Bureau of Efficiency.
J. L. Parsons, Hammermill Paper Company.
F. L. Mitchell, Abitibi Power and Paper Company.
H. R. Murdock, Champion Fibre Company.
D. E. Cable, U. S. Rubber Company.

Comments on Scope

Mr. Scribner has suggested that a single alpha cellulose test be used for both pulp and paper and that the first section, "I-Scope," should include a sentence stating that the method is applicable to "paper making fibers—rag half stuff, linters and the like." This would probably be a wise step and there seems no obvious objection to it.

* Presented at the annual meeting of the Technical Association of the Pulp and Paper Industry, New York, N. Y., February 13-16, 1933. Contribution of the TAPPI Pulp Testing Committee.
[1] Member TAPPI, Western Electric Company, Kearny, N. J.

However, Mr. Scribner's subsequent statement that the method could be applied to groundwood by applying a residual lignin test is not well founded as the alpha cellulose test cannot be applied to as highly lignified material as groundwood, which has approximately the chemical composition of sawdust.

Preparation of Sample

Messrs. Hamill and Scribner suggest that a grinder similar to the Koerner type be used for preparing all samples because of the differences experienced in using ground samples and the 0.5 inch squares. This seems a highly advisable step as pulp is now sold in the shredded form as well as in laps and sheets, and because laps and sheets vary greatly in thickness. No doubt more comparable results can be obtained if all samples are ground. The suggestion of Mr. Murdock that uniform hand sheets be made and cut into the required size squares seems unwise as the operation is more cumbersome than that of grinding. Mr. Scribner has also wisely suggested that the use of alkali and acid resistant glassware be specified.

Preparation of Caustic Soda Solution

Mr. Griffin correctly states that it is unnecessary to allow the concentrated caustic solution to stand for 10 days, as long as it is clear before dilution to 17.5 per cent.

Paper Method vs. Pulp Method

Mr. Scribner unqualifiedly recommends the procedure used in the standard method for alpha cellulose in paper as superior to the standard method for pulp in rapidity, simplicity and reproducibility of test data. This seems largely a matter of personal opinion as well as skill in using any given procedure. The main differences are as follows:

(a) In the paper method a 5 gram sample is used and in the pulp method a 3 gram sample is used.

(b) The method for paper specifies the addition of 50 cc. of 17.5 per cent caustic in a water bath at 20 deg. C. with maceration of the sample. Five (5) minutes later 50 cc. additional are added and the whole allowed to stand for 30 minutes (total time from the first addition of caustic). The whole is diluted with 250 cc. of distilled water and filtered on a tared nainsook cloth disc on a 7.5 cm. Buchner funnel. The pulp method specifies the addition of 35 cc. of caustic soda together with a similar maceration at 20 deg. C. In the next 10 minutes an additional 40 cc. of caustic soda in a 10 cc. portion is added. The ratio of caustic soda volume to sample weight is 1:25 as against 1:20 for the method for paper. A total mercerization time of 45 minutes is used for pulp as against 30 minutes for paper.

(c) The method for paper provides for washing with 125 cc. of distilled water at 20 deg. C. which is returned to the funnel and followed by a further washing with 750 cc. of water. The pulp method provides for the use of 750 cc. of distilled water at 20 deg. C. after the caustic soda-fiber mixture has been diluted with 75 cc. of water. In both cases this washing is followed by an acetic acid wash followed by water to neutrality.

The writer does not agree with Mr. Scribner that the procedure for paper is superior to that for pulp, as the latter has the added advantage of being almost identical with Method IV which was arrived at after a great deal of work by the Division of Cellulose Chemistry of the American Chemical Society. (This study probably represents the most comprehensive investigation from an analytical viewpoint on the subject to date). There seems to be no reason to discard the method for pulp in favor of the one for paper as the latter seems to offer few, if any, advantages for pulp analysis.

Addition of Water Before Filtration

Dr. Parsons believes that the addition of 75 cc. of water after the mercerization is complete (before filtering) is unnecessary. The writer has not seen comparative data on this operating detail and has had no personal experience regarding the omission. However, the point merits discussion.

Use of Ether

The use of ether should follow a preliminary wash with a volatile solvent miscible with water and ether, e.g., 95 per cent alcohol. However, if such a solvent as alcohol is used the drying time will be in almost all cases sufficiently shortened to permit of a rapid determination even without the subsequent use of ether. Naturally, as Mr. Griffin pointed out, petrolic ether is not miscible with water and would not penetrate the moist residue.

Accuracy

As several have pointed out, test results should be reported to 0.1 per cent instead of 0.01 per cent and even this accuracy is obtainable only if corrections are made for ash. This could easily be done by taking one of the triplicate samples after the alpha cellulose determination and determining the ash. The other residues (in the case of unbleached pulps) could be used for the residual lignin analysis. The writer agrees with Dr. Cable that no correction is needed for resins and waxes as non-saponifiable matter of this nature would only be present in very minute quantities and would be removed if an alcohol-ether wash were used.

Suggested Changes for TAPPI Method

As a result of these suggestions it appears that the method may be advantageously altered according to the following outline:

I—Scope: "This method is applicable to paper-making fibers provided they are not highly lignified."

II—Apparatus: (Will replace Section I "Test Specimen.") This section can be taken directly from the "Standard Method for the Determination of Alpha Cellulose in Paper."

III—Procedure: This section should be the same as "Section II-Procedure" of the "Standard Method for the Determination of Alpha Cellulose in Pulp" except as follows: The parenthetical sentence dealing with the use of petrolic ether should read "(Drying of the alpha cellulose can be greatly expedited if the last washing is followed by 95 per cent alcohol followed by ether or some other highly volatile non-reactive liquid —— etc.)." Provision should also be made for the determination of ash, at the very end of this section as follows:

"The ash content of one of the triplicate alpha cellulose residues should be determined in the usual manner, the other residues (in the case of unbleached pulps) should be used for the determination of residual lignin."

IV—Modification for Unbleached Pulp: This section should be identical with Section II (Same title) of previous method.

V—Report: "All reports are made on the oven dry basis to tenths of a per cent."

VI—Notes on Method: To be identical with "Section V" of old method excepting that note (a) should read: "—— and allowing it to stand until all the sodium carbonate and impurities have settled leaving a clear supernatant liquid ——."

VII—Accuracy: This section should be the same as Section VI of the old method.

The Use of Metal Enclosed Switchgear in Paper Mill Electrification*

By M. H. Hobbs[1]

No part of the electrical installation in a paper mill deserves more careful thought and planning than the distribution system. Inadequacy here will counteract the most reliable power supply as well as the best motor and control layout which could be devised. Although by no means the only types of equipment which might be used in such a system, the forms here described have been found to be of great assistance to design engineers and operators of many industrial plants and power companies in this important work.

Used by Considerable Number of Mills

A considerable number of paper mills of various types both in the United States and Canada have already made use of metal enclosed switchgear for power distribution, but its application is by no means general, especially when compared with its widespread acceptance in steel mills or the central station industry.

Large steel companies early saw the possibilities in complete metal enclosure of switchgear, as well as the advantages of factory assembly and test, as compared with field building of structures, until at the present time very few new steel mill installations would be considered which were not largely made up of metal enclosed switchgear designs. A similar condition probably would exist in the paper mill industry were there a greater familiarity with the design and application features of metal enclosed equipment, since power requirements are exceeded in size and variety by few industries, and reliability is of paramount importance.

Adaptation to a Typical System

In this paper no attempt will be made to discuss the merits of various forms of electrical distribution systems, but only to show the adaptation of different types of metal enclosed switchgear to a typical system. Comparatively little information has been published recently on the paper mill distribution problem, and it is felt that subsequent papers on this subject would prove of considerable value, both for new plants and for those requiring rehabilitation. Considerable information exists regarding motor requirements, and on power plant layouts, particularly having to do with the mechanical and steam features, but the distribution problem, important as it is, appears to have been less generally covered.

Broad Use in Different Industries

The broad use of metal enclosed switchgear can best be shown by the following list of different industries and applications in addition to paper mills in which it may be found:

* Presented at the annual meeting of the Technical Association of the Pulp and Paper Industry, New York, N. Y., February 13-16, 1933.
Contribution of the TAPPI Heat and Power Committee.
[1] Switchboard Engineering Dept., Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa.

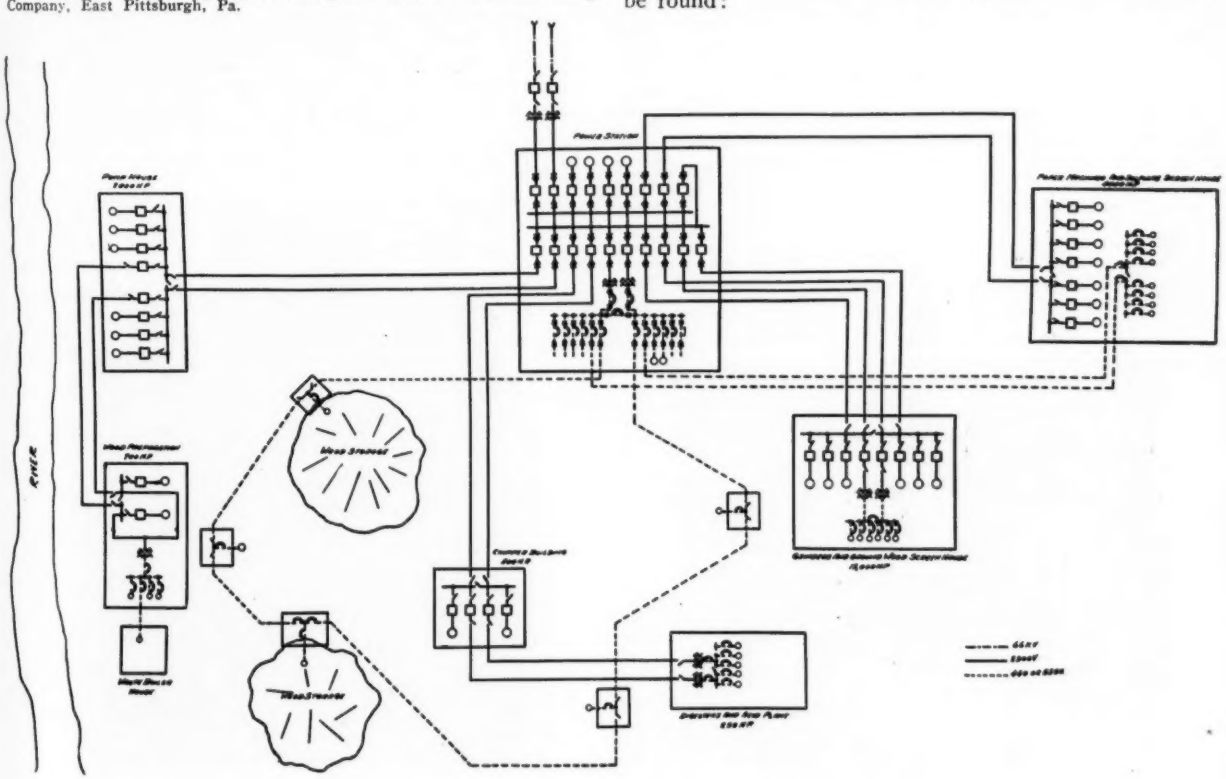


FIG. 1
Diagram of a distribution system for a news print mill, showing substations and connected motor load at principal power distributing points. Note that sectionalization is carried through the entire system.

1. Industrial plants such as oil refineries, automobile plants, steel mills.
2. Substations for vehicular tunnel ventilation, lighting and traffic control.
3. Coal and copper mines.
4. Municipal water and sewage pumping plants, irrigation projects.
5. Subway and Street Railway substations.
6. Office building load centers.
7. Power stations and distribution substations.

The voltages to which it has been applied range from 125 to 33,000 with one outdoor installation at 132,000 volts. The equipment has been made for both indoor and outdoor service in most voltages and for oil, carbon, and De-ion air circuit breakers. It is thus seen that there are practically no applications to which some form of metal enclosed equipment will not be found readily adapted.

Features of Metal Enclosed Switchgear

Perhaps the outstanding feature appealing to design engineers and construction men is that of assembled shipment from the factory. Field engineering and installation work is thus greatly simplified, and uncertainties due to partial shipments, neglect to order material, etc., are eliminated. This affects the inevitable result of final cost, which is often extremely difficult to estimate where individual pieces of apparatus are purchased and assembled in the field. Of equal importance is the safety to life which is characteristic of metal enclosed switchgear. In fact, it is this feature which really brought about the development of the original designs. Even for low voltage circuits, when it is noted that 58 industrial fatalities occurred from contact with circuits of 440 volts and below in the past two years, the desirability of the safest construction is clearly shown.

Simplified Field Design Work

Simplified field design work means that the engineers' time can be largely devoted to the electrical system, station and conduit layouts, and protective and control schemes, eliminating the detailed mechanical design of bus and switch structures and compartments. This work is being carried on simultaneously in the manufacturers' plants, and, due to standardized designs, is much simplified.

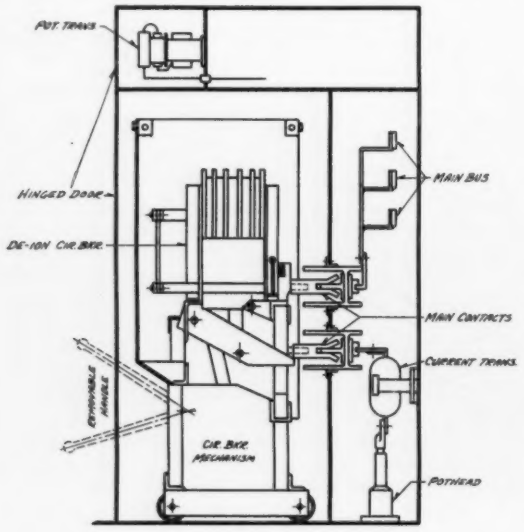


FIG. 3

Cross section of single De-ion breaker truck and housing for 2300 volt service.

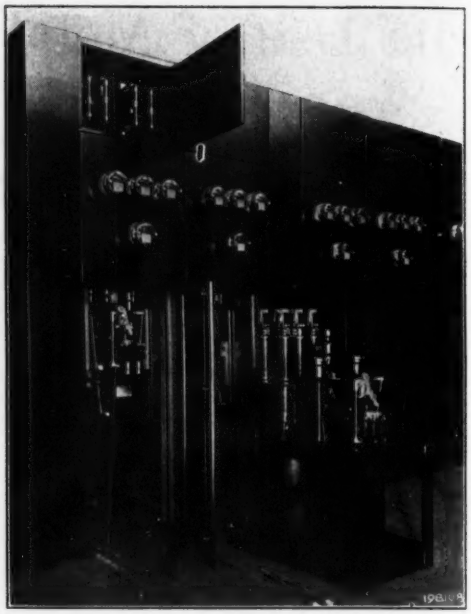


FIG. 2

Metal clad switchgear structure with vertical lift breaker units. Note potential transformer and relay location. Each unit has self-contained elevator.

Simplified Construction Work

Simplified construction work means that building construction, floors, etc. may be carried on without waiting for bus structure design to be completed, and that the switchgear, completely assembled, can be finally placed without the confusion incident to the necessity of working together of carpenters, masons, conduit men and installers on a masonry or similar structure.

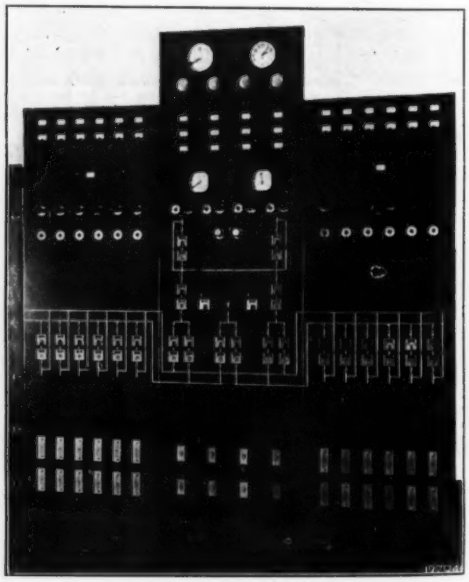


FIG. 4

Switchboard with miniature control switches, meters and indicating lamps, showing compacting possible when relays are separately mounted.

The Time Element

Of great importance in many cases is the time element so essential in modern business and plant construction. An example of this is a steel mill installation which was rolling sheets four days after the metal enclosed switchgear was received at the plant. We are all looking forward to the time when similar construction speed requirements will again be necessary. This particularly emphasizes the overall tests which are possible with this type of switchgear, as the equipment mentioned was completely automatic with very complicated control.

Voltage Classification

In general, power for paper mill machinery usually requires two voltages of distribution, 2300 and 440 or 550. There has been a quite general tendency in the industry to use 2300 volts on motors of 50 h.p. and above, with 440 or 550 volts on motors below this rating. There are exceptions to this division, of course, many mills using the lower voltage for all except possibly the larger motors, such as for grinders and pumps. However, the general practice appears to lean toward the classification given. 2300 volt motors in the larger ratings are cheaper, and distribution losses at the higher voltage are less, particularly if the different plant buildings are somewhat scattered.

This brings us to the logical dividing line between the types of circuit breakers to be used; the oil for 2300 volts, and air for 550 volts and below. In addition, there is the new De-ion air circuit breaker for the 2300 volt circuits, which will be touched upon later.

Typical System

It was considered that the best way to show the application of metal enclosed switchgear was by means of a typical paper mill distribution system, with an indication of the various power requirements for the different operations and processes. Fig. 1 shows such a system for a news print mill of 350 tons per day capacity. Modification of the system for larger or smaller mills or other types will not greatly affect the forms of switchgear to be selected. The power supply consists of two 66,000 volt incoming lines of 5000 kv-a. capacity each from a utility company, and four turbo generators of 5000 kv-a. each, generating at 2300 volts. The connected load in motors is approximately 33,000 horsepower or 25,000 kv-a. There is thus some reserve capacity to take care of growth and as a safety factor in case of a shut down of a transmission line or a turbo generator. Several bus arrangements other than that indicated are possible, and the system will depend to a great extent on the physical location of the various buildings requiring the larger blocks of power. The mill shown has rather widely separated machine rooms.

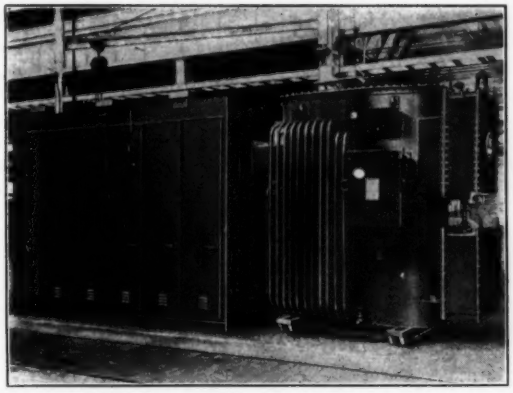


FIG. 5

Distribution unit for outdoor substation, showing metal clad connection between the transformer and switchgear. Transformer is equipped with automatic underload tap changer. Switchgear comprises five breaker equipments.

Power Station 2300 Volt Switching Equipment

After determining the system to be used, bus arrangements, number, location and size of circuits, and breaker interrupting capacities required, the next step is the selection of the types of switchgear. For the main 2300 volt switching equipment in the power station, which requires the most flexible apparatus, metal clad switchgear as shown in Fig. 2 or Fig. 3 is recommended. This provides the disconnecting type of circuit breaker unit, which permits ready removal and replacement of a breaker for maintenance or repair with a minimum interruption to service. Such an installation will occupy very little space and still provides complete safe accessibility where required. The figures show apparatus of the indoor type, but the same equipment may be mounted in a weatherproof outdoor housing, thereby eliminating the building or room required. A cross section of the unit is shown at the left in Fig. 8.

Primary Disconnecting Contacts

The primary or main disconnecting contacts are mounted directly on the circuit breaker studs, with the correspond-

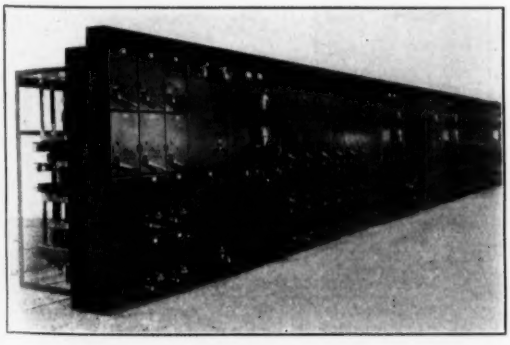


FIG. 6

440 volt carbon circuit breaker structure of the draw-out type, using different sizes of breakers. See Fig. 8 for cross section of similar structure.

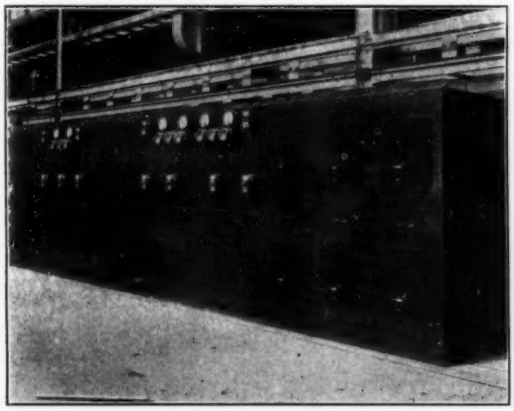


FIG. 7

Switchgear structure for carbon breakers of the stationary back-of-board type. Busses mounted in the rear.

ing stationary members in the housing. Automatic secondary or control contacts of the plug type complete the control circuits when the breaker is moved to the operating position, and a jumper is used to bridge these contacts for operation in the disconnect position. For the vertical lift unit, movement of the breaker between the two positions is accomplished by means of a self contained elevator in each housing, which may be operated either by a crank or by a portable electric nut runner. Safety interlocks insure that the breaker is open before it can be raised or lowered. There is, therefore, no danger of making or breaking current on the disconnecting contacts. The Deion breaker unit is rolled horizontally from the disconnect to the operating position.

Bus and Connections Completely Insulated

The bus and connections are completely insulated and these as well as the current and potential transformers are enclosed in metal. Fuses for the latter are accessible through hinged doors, as shown. By means of pot heads incorporated in the switchgear, cable connections can be made with wiping sleeves or by direct conduit connection using any type cable selected.

As indicated in Fig. 2, protective relays may be mounted directly on the front of the structure upon hinged panels. This is desirable as it permits a reduction in size of the operating switchboard and may reduce the number and length of conduit and control cable interconnections. Fig. 4 shows such a compact switchboard, providing complete control and metering equipment as desired, but with the relays separately mounted.

Combination for a Distributing Station

The high tension switchgear for the 66 kv. incoming lines may consist of outdoor frame mounted breakers with a simple steel structure to carry disconnecting switches and connections to the transformers. The low tension transformer connections may either be brought to the switching structure in cable or by means of a metal enclosed connecting compartment. The latter arrangement is most readily carried out if the switchgear is of the outdoor type, and makes the shortest and most economical connection. Fig. 5 shows a combination of this kind as developed for a distribution substation.

Power Station Low Voltage Switchgear

The 440 volt switching equipment in the power station, feeding the station auxiliaries and circuits to nearby rooms and buildings, should preferably use air breakers and

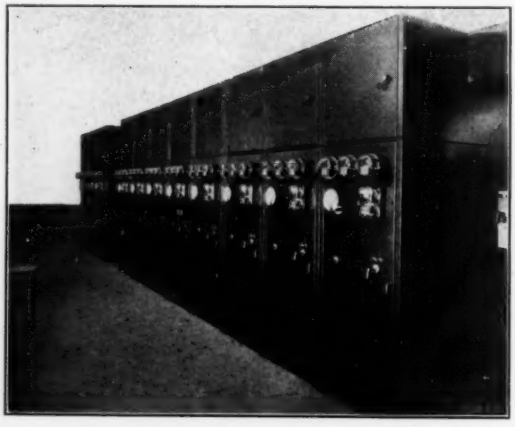


FIG. 9

Typical cubicle structure for large industrial plant. Units may be handled and shipped in blocks if handling facilities permit.

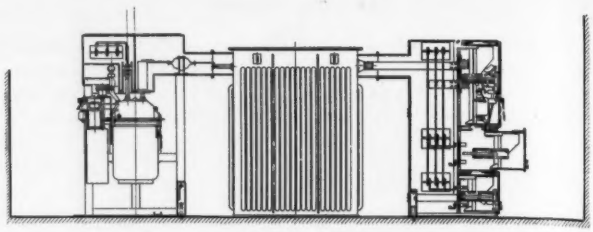


FIG. 8

Cross section of combination primary and secondary switchgear structure and transformer. Inter-connections can be extended to permit isolation by building walls if desired.

should be metal enclosed. For maximum flexibility, the units may be of the drawout type pictured in Fig. 6, or they may be of the stationary breaker, "back-of-board" type shown in Fig. 7. As the pictures indicate, either construction is similar in appearance to a standard steel panel switchboard and a combination with such a board can readily be made if desirable.

The draw-out type is equivalent to the 2300 volt metal clad equipment described, as to the disconnecting and safety features, and both draw-out and back-of-board types carry self contained busses and connections. If the units are convenient to the operator, hand operated breakers will be satisfactory. Otherwise, electrically operated units should be provided. Here again a direct tie can be made from the transformers to the bus structure if building plans permit it, as shown in Fig. 8.

Substation Switchgear

For the 2300 volt structures at other receiving and distributing points such as the grinder plant, paper machine plant, etc., a metal enclosed cubicle structure makes a very satisfactory installation. Figs. 9 and 10 show examples of such structures and Fig. 11 a cross section of a typical unit. Installations of this type of equipment have been made by such representative paper companies (among others) as Crown Willamette, Munising, Maine Seaboard, Bogalusa, and Olympic Forest Products.

Minimum Field of Assembly Required

The principal difference between cubicles and so-called metal clad units is the use of stationary circuit breakers

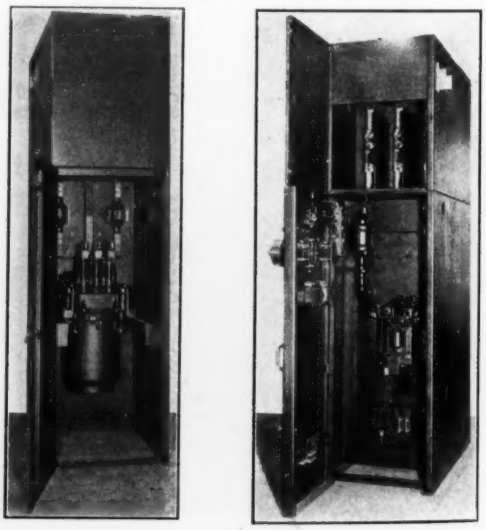


FIG. 10

Front and rear views of single cubicle unit, showing hinged front panel, secondary wiring compartment, and in the rear, accessibility of circuit breaker.

and disconnecting switches instead of the disconnecting type breaker units previously described. As indicated in the illustrations, access to the breaker is provided by a door at the rear, and to the mechanism by a door or hinged panel at the front. A barrier separates the breaker unit from the mechanism and control wiring so as to permit safe access to the latter. Where desired for further safety, the disconnecting switches may be gang operated and interlocked with the circuit breaker and the rear door to insure correct operation. As may be noted, instruments, relays and control switches are usually mounted on the hinged panels which form doors for the lower front of the cubicles. This gives the most compact assembly and makes cross connections between breakers and switchboard panels self contained in a single structure. Where required for motor starting, reactors or auto transformers are readily built into the cubicle structure, with factory made connections, making a completely assembled installation which requires a minimum of field assembly.

For the 440 volt switchboards at the various power consuming locations, a back-of-board breaker assembly should prove entirely adequate. Fig. 12 shows a typical switchboard containing carbon breakers and also the new AB De-ion breaker which requires considerably less space. Equipment of this kind is simple to install and is thoroughly safe and reliable. Busses and connections are shipped assembled.

Outdoor Switchgear Units

For a loop circuit, such as might be used to supply motors on the wood conveyor system, outdoor cubicles or switchhouses may be used to advantage. These would include units such as were mentioned in the previous paragraph, together with sectionalizing disconnecting switches or breakers as required. If the loops were 2300 or higher voltage, corresponding breakers can of course be accommodated in a similar housing. Connections may be made to roof bushings as shown in Fig. 13 or may be brought in in cable, according to the type of distribution system used. One of the greatest advantages of such a unit is its adaptability and the ease with which it can be moved to a new location as developments and changed conditions might require.

Will Supply Major Equipment of Paper Mill

The different types of switchgear mentioned above will readily supply the major requirements of a paper mill distribution system of practically any size. No attempt has been made to cover motor control as such, although the equipment described is often used for this application as well. Particularly for larger motor installations, cubicles make a very satisfactory and safe structure.

FIG. 12

Switchboard with back-of-board carbon and AB De-ion breakers for 440 volt circuits. Breakers are accessible through removable front covers.

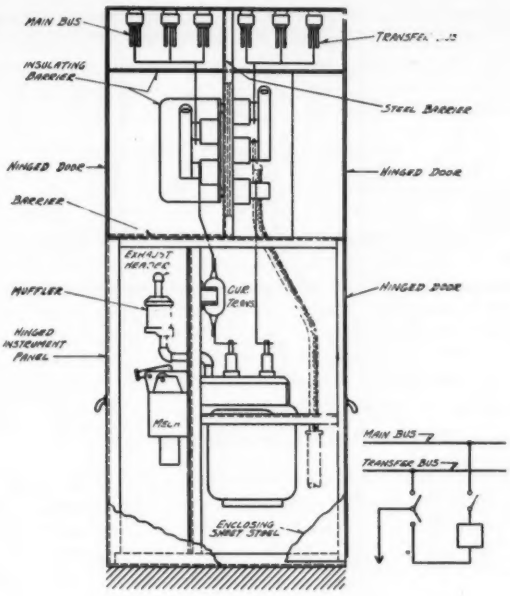


FIG. 11

Cross section of cubicle for main and transfer busses, with selector switches in the rear.

Circuit Breaker Developments

Of particular importance in connection with metal enclosed switchgear are the circuit breakers used in it, and it would appear desirable to review briefly recent developments, which have practically revolutionized the art of circuit interruption in the past three years. Their success is very largely due to the great testing laboratories now available for interrupting capacity tests. First was the De-ion air circuit breaker, as shown in Fig. 14, for circuits of 15,000 volts, using the principle of the cold cathode arc and multiple gap arc extinguishing structure. This

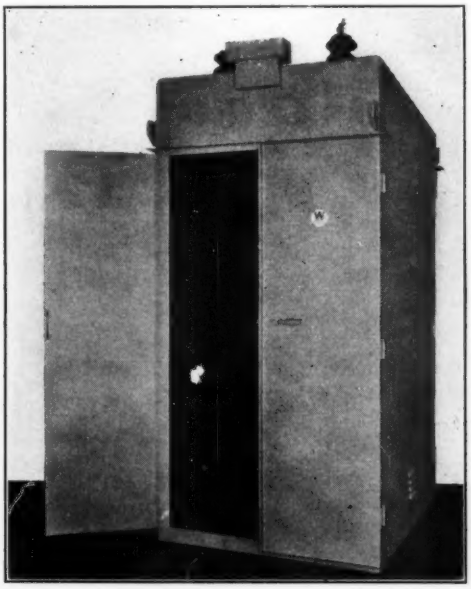


FIG. 13

Outdoor cubicle or switchhouse for either 2300 volt or lower voltage breakers and panels. Readily movable as required for relocation.

has since been extended down to 2300 volts and up to 22,000 volts. The complete elimination of oil for a breaker of this voltage class has been an outstanding development and one which promises much for future safety and reduction of maintenance.

De-ion Oil Circuit Breaker

Next came the "De-ion Grid" oil circuit breaker for voltages of 15,000 to 220,000. The De-ion Grids (See Fig. 15) surround the arcing contacts and consist of a series of insulating plates having interspersed plates of magnetic material, all so disposed and vented that the arc is moved laterally into oil pockets where it vaporizes the oil. The resulting gas is forced through the arc stream in such a way as to deionize the arc in the minimum time with a consequent reduction in arc energy and oil deterioration.

De-ion Air Breaker Principle

Fig. 16 shows the third development, which is the extension of the De-ion air breaker principle to small breakers for 125 to 600 volts. The principle is essentially the same as that for the higher voltage arcing structure, but the pole units are of course much smaller and are mounted in a moulded base of Micarta. The resulting breaker is completely enclosed and in size and weight is much smaller than the corresponding carbon breaker, a 3 pole, 225 ampere 600 volt unit being only 8½" wide, 15½" high, and 4½" deep.

Conclusion

It has been the aim of this paper to describe metal enclosed equipment which could be applied to typical paper mill distribution systems, and to point out the features of safety, reliability and ease of installation now available in this type of switchgear.

It will be felt that the paper has accomplished its purpose if it also serves to emphasize the great importance the distribution system plays in mill operation, fully meriting the most careful consideration in its planning which may be given.

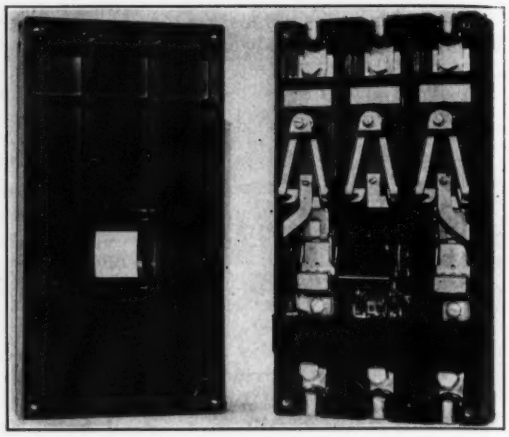


FIG. 16

AB De-ion air breaker for voltages of 600 and below. Arcing chambers at top. Note complete moulded case and cover.

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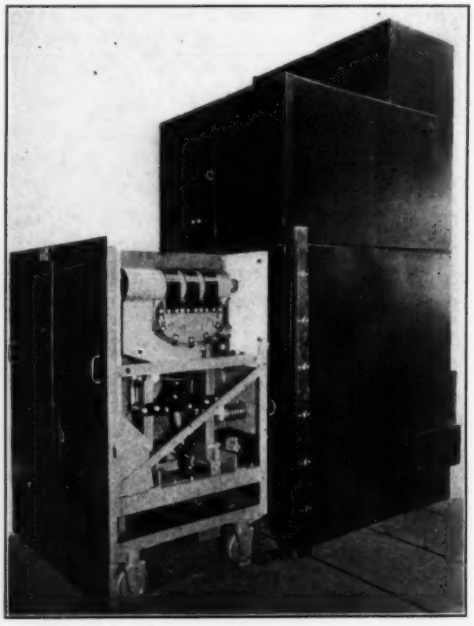

FIG. 14

De-ion breaker mounted on truck for 15,000 volt service. Arc extinguishing chamber is at the top of the breaker.

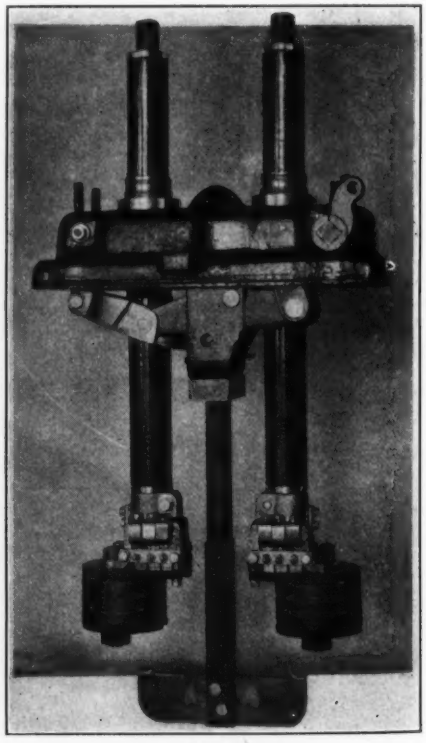

FIG. 15

De-ion grid arcing structure with contacts for 15,000 volt oil circuit breaker. Also suitable for lower voltages such as 2300.

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National City Bank, Quaker City, Manchester, 24 bls. rags; ———, Quaker City, Liverpool, 143 cs rags; M. Snedeker Corp., Quaker City, Belfast, 188 bls. paper stock; J. Cohen Son Co., Adriatic, Liverpool, 73 bls. paper stock, 14 bls. rags; E. J. Keller Co., Inc., Coelleda, ———, 68 bls. bagging; E. J. Keller Co, Inc., Anna Maersk, ———, 5 bls. flax waste; Darmstadt Scott & Courtney, Cameronia, Glasgow, 14 bls. rags; J. Flannery, Pipestone County, Havre, 39 bls. rags; Banco Coml. Italiane Trust Co., Pr. Harding, Hamburg, 82 bls. rags.

OLD ROPE

G. A. Henshaw & Son, Kyno, Hull, 64 coils; G. W. Millar & Co., Kyno, Hull, 76 coils; Castle & Overton, Inc., Kyno, Hull, 72 coils; Banco Coml. Italiane Trust Co., Dresden, Bremen, 177 coils; W. Steck & Co., Pipestone County, Dunkirk, 42 coils; E. J. Keller Co., Inc., Excalibur, ———, 179 coils.

CASEIN

D. C. Andrews & Co., Deutschland, Hamburg, 60 bags.

WOOD PULP

J. Andersen & Co., Tortugas, Greaker, 2,750 bls. sulphite; J. Andersen & Co., Sparreholm, Gothenburg, 500 bls. sulphite; Chase National Bank, Sparreholm, Gothenburg, 400 bls. sulphite; E. M. Sergeant & Co., Sparreholm, Gothenburg, 160 bls. sulphite; Lagerloef Trading Co., Sparreholm, Gothenburg, 262 bls. sulphate, 787 bls. sulphite; Lagerloef Trading Co., Scanpenn, Helsingfors, 2,109 bls. sulphite, 353 tons; Castle & Overton, Inc., Scanpenn, Helsingfors, 4,055 bls. chemical pulp, 808 tons; Castle & Overton, Inc., Black Falcon, Rotterdam, 650 bls. wood pulp 130 tons; J. Manheimer, Black Falcon, Rotterdam, 25 bls. wood pulp; D. F. Young, Pr. Harding, Hamburg, 1,265 bls. wood pulp, 195 tons; ———, Pr. Harding, Hamburg, 575 bls. wood pulp, 88 tons; Castle & Overton, Inc., Deutschland, Hamburg, 965 bls. wood pulp, 193 tons; Gottesman & Co., Inc., Stuttgart, Sweden, 470 bls. wood pulp.

PORTLAND IMPORTS

WEEK ENDING MARCH 11, 1933

Gottesman & Co., Inc., Milos, Sweden, 9,675 bls. wood pulp.

BOSTON IMPORTS

WEEK ENDING MARCH 11, 1933

International Purchasing Co., Kyno, Hull, 657 coils old rope, 328 bls. yarn; ———, Pipestone County, Dunkirk, 110 bls. bagging; ———, Pipestone County, Havre, 300 bls. bagging; E. J. Keller Co., Inc., Wiegand, ———, 672 bls. wood pulp; Gottesman & Co., Inc., America, Norway, 250 bls. wood pulp.

PHILADELPHIA IMPORTS

WEEK ENDING MARCH 11, 1933

Corn Exchange Bank Trust Co., Nankai Maru, Kobe, 75 bls. rags; Jay Madden Corp., Scanpenn, Helsingfors, 145 bbls. tissue paper; Paper Manufacturers Co., Inc., Scanpenn, Helsingfors, 97 bls. news print; J. W. Hampton Jr., Inc., Scanpenn, Helsingfors, 177 rolls news print; Lagerloef Trading Co., Scanpenn, Helsingfors, 105 bls. sulphate, 21 tons, 5,915 bls. suplhite, 1,093 tons, 753 bls. wood pulp boards; Hoffman Lion Mills, Tai Shan, Kobe, 130 bls. rags; Corn Exchange Bank Trust Co., Anna Maersk, Kobe, 70 bls. rags; Castle & Overton, Inc., Pipestone County, Dunkirk, 113 bls. rags; F. Weber & Co., Pipestone County, Havre, 1cs. drawing paper; Castle & Overton, Inc., Pipestone County, Havre, 152 bls. rags; Parsons & Whittemore, Inc., Karpfanger, ———, 900 bls. wood pulp.

BALTIMORE IMPORTS

WEEK ENDING MARCH 11, 1933

The Borregaard Co. Inc., Tortugas, Oslo, 300 bls. sulphite; Johaneson Wales & Sparre, Inc., Tortugas, Oslo, 300 bls. mechanical; Atterbury Bros. Inc., Tortugas, Oslo, 800 bls. sulphite; The Borregaard Co. Inc., Tortugas, Bamble, 300 bls. sulphite; Atterbury Bros. Inc., Tortugas, Tofte, 6400 bls. sulphite; Perkins Goodwin & Co., Tortugas, Hurum, 400 bls. sulphite; The Borregaard Co. Inc., Tortugas, Hurum, 2544 bls. wood pulp; The Borregaard Co. Inc., Tortugas, Greaker, 60 bls. sulphite; Price & Pierce, Ltd., Tortugas, Greaker, 125 bls. sulphite.

NEWPORT NEWS IMPORTS

WEEK ENDING MARCH 11, 1933

The Borregaard Co. Inc., Tortugas, Bamble, 3000 bls. sulphite; Atterbury Bros. Inc., Tortugas, Tofte, 150 bls. sulphite.

NORFOLK IMPORTS

WEEK ENDING MARCH 11, 1933

———, Coelleda, Liverpool, 92 bls. bagging; W. Stone & Co., Coelleda, Manchester, 9 cs. tissue paper; Carolina Bagging Co., Tai Shan, Kobe, 750 bls. bagging.

SAVANNAH IMPORTS

WEEK ENDING MARCH 11, 1933

Manufacturers Trust Co., Tai Shan, Shanghai, 417 bls. bagging.

DALLAS IMPORTS

WEEK ENDING MARCH 11, 1933

1st Natl. Bank of Boston, Tai Shan, Kobe, 121 bls. rags.

NEW ORLEANS IMPORTS

WEEK ENDING MARCH 11, 1933

Parsons & Whittemore, Inc., Aquarius, ———, 250 bls. sulphite.

Agasote Mill Reopens

TRENTON, N. J., March 6, 1933—Full plant operations of the Agasote Mill Board Company here resumed last night with a day and night force to meet new orders. More than 140 employees were at work.

From Harold Harvey, treasurer and general manager of the company, came a heartening message.

"Conditions are going to be normal," he declared, "and I believe that the spring business is going to be good. I don't intend to be discouraged by the situation and it is up to every one to get over this depression and get back to work.

"We're doing our share. We started at 10 o'clock last night with a full force of employees, who will work day and night.

World Paper Consumption Declines

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., March 1, 1933—The world consumption of paper has declined by several million tons since 1929, according to reliable estimates. Newsprint has been particularly affected, although the downward tendency has not been restricted to this class of paper.

WOOD PULP
AGENTS

PRICE & PIERCE, Ltd.,

60 EAST 42nd ST.
NEW YORK

ALUMINUM SULPHATE
(PAPER MAKERS' ALUM)

THE Standard Purity of this Company's product is maintained in an uncompromising degree, regardless of whether successive deliveries are from one or various of the Company's Works.

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40 Rector Street, New York, N. Y.
Cable Address: Lycurgus, N. Y.
Sales Offices: Buffalo, Chicago, Cleveland, Denver, Los Angeles, Philadelphia, Pittsburgh, Providence, San Francisco, St. Louis.
In Canada: The Nichols Chemical Company, Ltd. Montreal, P. Q.

Also BAKER & ADAMSON C.P. ACIDS..REAGENTS *and* FINE CHEMICALS

West Virginia Pulp and Paper Company

230 Park Ave. New York
35 East Wacker Drive Chicago
503 Market St., San Francisco, Cal.
Sixth and Chestnut Sts., Philadelphia, Pa.

Manufacturers of

ENGLISH FINISH SUPERCALENDERED
MACHINE FINISHED BOOK
and LITHOGRAPHIC PAPERS

Offset, Envelope, Bond, Writing, Mimeograph, Ledger, Cover and Music Papers, Index Bristol, Post Card and Label Papers

High Grade Coated Book

also

KRAFT WRAPPING AND KRAFT ENVELOPE
Bleached Spruce Sulphite Pulp, Soda and Kraft Pulp

MILLS:

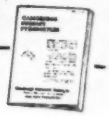
Mechanicsville, New York
Luke, Maryland
Covington, Virginia
Tyrone, Pennsylvania
Williamsburg, Pennsylvania
Cass, West Virginia

Two Models
for taking temperatures of
Drying Rolls

No need to stop the machine when taking roll temperatures. The thermocouple strip of the Cambridge Surface Pyrometer conforms to the shape of the roller. Within five seconds a steady reading of temperature is obtained. The HAND MODEL is a self-contained instrument for use upon readily accessible moving rolls. The EXTENSION MODEL is used for those hard-to-reach surfaces. Both models are sturdy and accurate.

CAMBRIDGE
INSTRUMENT CO INC
3732 Grand Central Terminal, New York City

SURFACE PYROMETERS



Send for details of these instruments. They will help you to save money and make better paper.

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, March 15, 1933.

The local paper market passed through a trying time during the bank holiday last week with considerable credit. The volume of business transacted was quite satisfactory considering prevailing conditions, although mainly for immediate requirements. Paper manufacturers considered it advisable to withdraw prices on orders for future delivery, in most instances, anticipating higher prices in the near future.

Production of news print paper in the United States and Canada was maintained in sufficient volume to take care of current needs. Consumption by the leading newspapers during the past week was curtailed materially due to the banking crisis and the volume of advertising declined. Circulations, however, were reported up 10 per cent. The price situation continues unsatisfactory.

The paper board market is holding up well. Box board manufacturers are now operating at approximately 55 per cent of capacity. Prices are steady. The fine paper market is displaying a stronger undertone. Tissue prices are stiffening. The coarse paper market is moderately active. Kraft wrapping paper prices are generally holding to formerly quoted levels.

Mechanical Pulp

While trading in the ground wood pulp market is quiet, the industry is considered in a sound statistical position. Production in the United States and abroad is practically keyed to consumption and accumulations are not excessive. Prices are holding to schedule and reports of concessions are infrequent.

Chemical Pulp

Steadiness prevails in the chemical pulp market. While the volume of business transacted during the past week was light, demand for the various domestic and imported grades is expected to expand now that the banking situation is clearing, and contract shipments are expected to move more freely.

Old Rope and Bagging

Conditions in the old rope market are fairly satisfactory. Demand for both domestic and foreign old manila rope is moderately active. Small mixed rope is moving slowly. Old rope prices are fairly steady. The bagging market is rather quiet. Demand for gunny and scrap bagging is light. Bagging prices are irregular.

Rags

Sentiment in the domestic rag market is improving. Due to the banking holiday, however, demand for cotton cuttings is listless. Roofing grades are in fairly good request. Prices are strictly nominal. The imported rag market is unsettled and is still affected by the fluctuations of foreign currencies.

Waste Paper

The local paper stock market is firmer. The better grades of waste paper, including hard and soft white shavings, are going forward in good volume. Board mill demand for the lower grades is fairly persistent. Collections fell off considerably during the past week, due to the difficulty of making payments. Strictly folded news and No. 1 mixed paper are displaying a stronger undertone.

Twine

Business in the local twine market during the past week was rather dull. Most of the orders transacted were along routine lines. With improvement in the banking situation, however, and the approach of Eastertide, more lively trading is anticipated in the near future. No radical price changes have been reported.

News of the Toronto Paper Trade

[FROM OUR REGULAR CORRESPONDENT]

TORONTO Ont., March 13, 1933—Dr. Blythe Eagles, a member of the faculty of the University of British Columbia, has secured a position with the Powell River Pulp and Paper Company, where he will engage in research work. The company has made large grants for research work at the University.

At an executive committee meeting of the Canadian Paper Box Manufacturers in Toronto it was decided to hold the annual convention this year on June 26 and 27 at the LaSalle Hotel in Kingston, Ont. The entertainment features at the gathering will be a trip through the Thousand Islands.

G. Harvey Smith, of Price Bros., Quebec, was a recent caller on a section of the Toronto paper trade. He also attended a meeting of board and paper box manufacturers held at the offices of the Canadian Paper Box Manufacturers' in the city.

George E. Farrow, of the Hoberg Paper Fibre Company, Green Bay, Wis., was a visitor this week at the office of Paper Sales, Ltd., Toronto.

E. Victor Donaldson, of the Robert Gair Company, New York, was a business visitor in Toronto during the past week.

J. J. Herb, president of Westminster Paper Company, New Westminster, B. C., was the guest speaker at a recent luncheon of the New Westminster Kiwanis Club. He dealt with high lights of his recent trip to the Orient.

Louis Lemieux, tariff expert of the Canadian Pulp and Paper Association, was a recent visitor to Toronto calling on the trade in connection with some investigations he is making.

Now Indianapolis Container Co.

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., March 13—Officials of the Indianapolis Paper Can and Tube Company of this city have filed papers with the Indiana secretary of state changing the name to the Indianapolis Paper Container Company.

WAYAGAMACK KRAFT PULP

MADE AT WAYAGAMACK MILLS

THREE RIVERS, CANADA

Sulphite Pulp—Paper and Board
J. & J. Rogers Co.
Ausable Forks, N. Y.

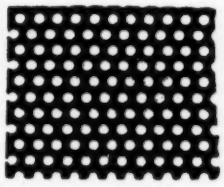
Seagull Bleached Soda Pulp
Canadian Cellulose Co.
Cornwall, Ont., Canada

Selling Agents

THE PULP & PAPER TRADING CO.
21 EAST 40th STREET, NEW YORK CITY

Perforated Metal Screens

For Pulp and Paper Mills



STEEL, COPPER, BRASS, BRONZE, MONEL METAL and other Alloys punched for Centrifugal and Rotary Screens, Pulp Washers, Drainer Bottoms, Filter Plates, etc.

".065" Round

CHARLES MUNDT & SONS
61-65 FAIRMONT AVE. JERSEY CITY, N. J.

Meyers Regulators DO Mesco Regulate

STOCK CONSISTENCY
Merritt Engineering & Sales Co., Inc.
Lockport, N. Y.

MARCH REFERENCE—HOBERG PAPER & FIBRE CO.

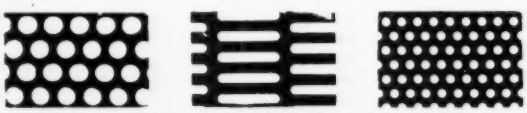
Experience has taught users of paper-making chemicals that P. M. C. products are uniform and reliable. These qualities are insured by quantity production, by control of raw materials, and by specializing in the manufacture of chemicals for the paper manufacturer.

PMC

SUPERIOR ROSIN SIZE
SATIN WHITE
INDUSTRIAL CHEMICALS

PAPER MAKERS CHEMICAL CORPORATION
KALAMAZOO, MICHIGAN
PLANTS IN ALL LARGE PAPER MAKING AREAS

PULP AND PAPER MILL SCREENS



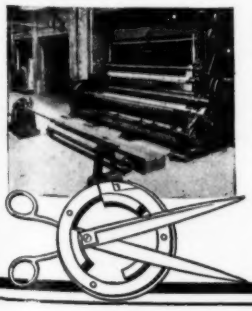
EVERY TYPE OF PERFORATED METAL

STAINLESS STEEL, MONEL, CHEMICAL RESISTING ALLOYS OR ANY METAL PERFORATED AS DESIRED

EXCELLENCE OF PRODUCT LOW PRICES

THE HARRINGTON & KING PERFORATING CO.
5652 FILLMORE ST., CHICAGO NEW YORK, 114 LIBERTY ST.

LANGSTON SLITTERS



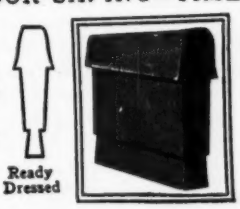
FOR clean, square-edged, tightly wound rolls, Langston Slitters are unequaled. The Shear-Cut parts the paper cleanly—instead of *crushing* it. Ask for details.

Samuel M. Langston Co., Camden, N. J.

"READY DRESSED" MILL COGS

LABOR SAVING—TIME SAVING

THE MOST ECONOMICAL FILLING THAT CAN BE PUT IN A MORTISE WHEEL



Ready Dressed

Blank Head

WE MAKE ANY STYLE OR SIZE WANTED

WRITE FOR INSTRUCTION SHEET "C" WHICH IS FREE

QUICK SERVICE ON ALL SIZES
THE N. P. BOWSHER CO., So. Bend, Ind.

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, March 15, 1933.

BLANC FIXE.—The blanc fixe market is marking time. Prices are holding to previously quoted levels. The pulp is quoted at from $42.50 to $45.00 per ton, in bulk; while the powder is selling at from 3½ cents to 3¾ cents per pound, in barrels, at works.

BLEACHING POWDER.—Conditions in the bleaching powder market are fairly satisfactory. Shipments against contract are moving in fair volume. Prices remain unchanged. Bleaching powder is quoted at from $1.75 to $2.00 per 100 pounds, in drums, at works.

CASEIN.—The casein market continues quiet. Domestic standard ground is quoted at 7 cents and finely ground at 8 cents per pound. Argentine standard ground is selling at 9 cents and finely ground at 9½ cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—Demand for caustic soda is moderately active. The contract movement is around normal. Solid caustic soda is quoted at from $2.55 to $2.60; while the flake and ground are selling at from $2.95 to $3.00 per 100 pounds, in large drums, at works.

CHINA CLAY.—The china clay market is rather quiet. Contract shipments are fairly regular. Prices remain unchanged. Imported china clay is quoted at from $10 to $15 per ton, ship side; while domestic paper making clay is selling at from $5 to $12 per ton, at mine.

CHLORINE.—Business in the chlorine market is fairly active. The contract movement is well up to average. Prices are generally holding to schedule. Chlorine is quoted at $1.75 per 100 pounds, in tanks, or multi-unit cars, in ton lots, or over, at works.

ROSIN.—The rosin market is decidedly firmer. Grades of gum rosin used in the paper mills are quoted at from $3.90 @ $4.30 per 280 pounds, in barrels, at works; while wood rosin is selling at $2.75 per 280 pounds, in barrels, at southern shipping points.

SALT CAKE.—Steadiness prevails in the salt cake market. Prices remain unchanged. Salt cake is quoted at from $12.50 to $13.00; chrome salt cake at from $11.50 to $12.50 per ton, in bulk, at works. Foreign salt cake is selling at from $12.50 to $13.00 per ton, on dock.

SODA ASH—The soda ash market is listless at present, although displaying a fairly strong undertone. Prices are steady. Quotations on soda ash, in car lots, at works, per 100 pounds, are as follows: in bulk, $1.05; in bags, $1.30; and in barrels, $1.43.

STARCH.—Paper mill demand for starch has fallen off temporarily. The contract movement is seasonal. Prices remain unaltered. Special paper making starch is quoted at $2.19 per 100 pounds, in bags; and at $2.46 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—The sulphate of alumina market is proceeding along routine lines. Prices are holding to schedule. Commercial grades are quoted at from $1.25 to $1.46; while iron free is selling at from $1.90 to $2.05 per 100 pounds, in barrels, at works.

SULPHUR.—The sulphur market continues steady. Sulphur is quoted at $18 per long ton, on orders of 1,000 tons, or over, on yearly contracts; and at $20 per ton on any smaller quantity over that period. On spot and near by car loads, the quotation is $21 per ton.

TALC.—Trading in the talc market during the past week was rather restricted. Prices are unaltered. Domestic talc is quoted at from $16 to $18 per ton, in bulk, at eastern mines; while imported talc is selling at from $18 to $22 per ton, ship side.

Market Quotations

Paper

(F. o. b. Mill)

Ledgers	6.50	@	38.00
Bonds	4.50	@	53.25
Index	6.00	@	12.00
Writings—			
Extra Superfine	6.50	@	15.00
Superfine	6.25	@	14.75
Tub sized	4.50	@	7.00
Engine sized	4.00	@	5.00
Book, Cased—			
S. & S. C.	4.25	@	5.00
M. F.	3.75	@	4.25
Coated and Enamel	5.00	@	9.00
Lithograph	5.00	@	9.00
Tissues—Per Ream—			
White No. 1	.50	@	.70
White No. 2	.45	@	.60
Anti-Tarnish M. G. only	.65	@	.70
Colored	.70	@	.90
Kraft	.65	@	.70
Manila	.55	@	.60
Manila—			
No. 1 Jute	9.00	@	9.25
No. 2 Jute	7.75	@	8.50
No. 1 Wood	4.00	@	5.25
No. 2 Wood	3.50	@	4.00
Butchers	3.37½	@	—
Fibre Papers—			
No. 1 Fibre	4.25	@	5.50
No. 2 Fibre	4.00	@	4.75
Common Bogus	1.50	@	3.00
Screenings	2.00	@	3.00
Card Middles	4.00	@	5.00
Glassine—			
Bleached, basis 25 lbs., No. 1	.09¼	@	—
No. 2	.11¼	@	—
Bleached, basis 20 lbs.	.11¾	@	—

(Delivered New York)

News, per ton—			
Roll, contract	45.00	@	—
Rolls, spot	45.00	@	—
Sheets	50.00	@	—
Side Runs	30.00	@	35.00
Kraft—			
No. 1 Domestic	4.50	@	4.75
No. 2 Domestic	2.75	@	3.00
Southern	2.50	@	2.75
Imported	2.75	@	3.50
Boards—per ton—			
News	30.00	@	32.50
Straw	29.50	@	31.50
Chip	27.50	@	30.00
Binders' Boards	62.00	@	70.00
Kraft Liner	40.00	@	45.00
Standard 85 Test Jute Liner	27.75	@	30.00
Sgl. Mla. Ll. Chip	37.50	@	40.00

(F. o. b. Mill)

Wood Pulp Boards	70.00	@	80.00

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—			
Moist	18.00	@	20.00
Dry	19.00	@	21.00

(F. o. b. Mill)

No. 1 Domestic and Canadian	14.00	@	22.00

Chemical Pulp

(On Dock, Atlantic Ports)

Sulphite (Imported)—			
Bleached	1.80	@	2.25
Easy Bleaching	1.60	@	1.75
No. 1 strong unbleached	1.35	@	1.60
Mitscherlich unbleached	1.60	@	1.75
No. 2 strong unbleached	1.25	@	1.35
No. 1 Kraft	1.25	@	1.40
No. 2 Kraft	1.10	@	1.15
Sulphate—			
Bleached	1.85	@	2.15

(F. o. b. Pulp Mill)

Sulphite (Domestic and Canadian)—			
Bleached	1.75	@	3.75
Easy Bleaching	1.75	@	1.90
News	1.40	@	1.65
Mitscherlich unbleached	2.00	@	2.25
Kraft (Domestic)	1.25	@	2.75

(Delivered Paper Mills)

Soda Bleached	2.00	@	—

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	3.80	@	4.00
New White, No. 2	3.00	@	3.25
Silesias No. 1	3.25	@	4.00
New Unbleached	5.25	@	5.75
New Soft Blacks	2.75	@	3.00
Blue Overall	3.00	@	3.50
Fancy	1.25	@	1.50
Washables	1.00	@	1.25
Mixed Khaki Cuttings	2.50	@	3.00
Pink Corset Cuttings	2.75	@	3.25
O. D. Khaki Cuttings	3.00	@	3.25
Men's Corduroy	1.00	@	1.25
New Mixed Blacks	2.25	@	2.50

Old Rags

White, No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.00	@	2.25
White, No. 2—			
Repacked	1.75	@	2.00
Miscellaneous	1.50	@	1.75
Thirds and Blues—			
Repacked	1.50	@	1.75
Miscellaneous	1.00	@	1.25
Black Stockings	2.00	@	2.25
Roofing Rags—			
No. 1	.53	@	.58
No. 2	.48	@	.53
No. 3	.43	@	.48
No. 4	.38	@	.43
No. 5A	.33	@	.38

Foreign Rags

New Rags

New Dark Cuttings	1.30	@	1.40
New Mixed Cuttings	1.50	@	1.60
New Light Silesias	3.00	@	3.25
Light Flannelettes	2.50	@	2.75
Unbleached Cuttings	4.50	@	5.00
New White Cuttings	4.00	@	4.25
New Light Oxfords	3.00	@	3.25
New Light Prints	1.85	@	2.25

Old Rags

No. 1 White Linens	5.25	@	5.50
No. 2 White Linens	4.50	@	4.75
No. 3 White Linens	3.25	@	3.75
No. 4 White Linens	1.75	@	2.25
No. 1 White Cotton	3.50	@	3.75
No. 2 White Cotton	2.75	@	3.25
No. 3 White Cotton	2.25	@	2.50
No. 4 White Cotton	1.40	@	1.50
Extra Light Prints	1.80	@	2.00
Ord. Light Prints	1.60	@	1.75
Med. Light Prints	1.40	@	1.55
Dutch Blue Cottons	1.35	@	1.40
French Blue Linens	1.80	@	1.90
German Blue Linens	1.70	@	1.80
German Blue Cottons	1.20	@	1.25
Checks and Blues	1.25	@	1.30
Lindsay Garments	.75	@	.80
Dark Cottons	.70	@	.75
Old Shopperies	.55	@	.60
New Shopperies	.60	@	.65
French Blues	1.25	@	1.30

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—			
Foreign	.90	@	1.00
Domestic	1.00	@	1.10
Wool Tares, light	.70	@	.80
Wool Tares, heavy	.70	@	.80
Bright Bagging	.70	@	.75
Small Mixed Rope	.50	@	.60
Manila Rope—			
Foreign	1.35	@	1.40
Domestic	1.40	@	1.50
New Burlap Cut	1.00	@	1.50
Hessian Jute Threads—			
Foreign	2.60	@	2.75
Domestic	2.80	@	3.00

Old Waste Papers

(F. o. b. New York)

Shavings—			
White Envelope Cuttings	1.70	@	1.80
Ordinary Hard White No. 1	1.55	@	1.65
Hard White No. 2	1.30	@	1.40
Soft White No. 1	1.35	@	1.45
Flat Stock—			
Stitchless	.55	@	.65
Overissue Mag	.55	@	.65
Solid Flat Book	.50	@	.55
Crumpled No. 1	.40	@	.45
Solid Book Ledger	1.50	@	1.75
Ledger Stock	.45	@	.55
New B. B. Chips	.20	@	.25
Manilas—			
New Env. Cut	1.25	@	1.35
New Cuttings	1.00	@	1.05
Extra No. 1 old	.80	@	.90
Print	.35	@	.40
Bogus Wrapper	.30	@	.35
Container	.25	@	.30
Old Kraft Machine—			
Compressed bales	.60	@	.70
News—			
No. 1 White News	1.00	@	1.05
Strictly Overissue	.45	@	.50
Strictly Folded	.30	@	.35
No. 1 Mixed Paper	.15	@	.20

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Twines
(F. o. b. Mill)

Cotton—			
B. C., 18 basis	.30	@	.32
No. 1	.20	@	.22
No. 2	.19	@	.20
No. 3	.17	@	.18
A. Italian, 18 basis	.36	@	.37
Finisaed Jute—			
Dark, 18 basis	.18	@	.20
Light, 18 basis	.20	@	.22
Jute Wrapping, 3-6 Ply—			
No. 1	.15½	@	.16½
No. 2	.11¾	@	.12¾
Jute Rope—			
4-ply and larger	.10¼	@	.10¾
Fine Tube Rope—			
4-ply	.12¼	@	.12¾
3-ply	.13¼	@	.13¾
2-ply	.14¼	@	.14¾
Paper Makers Twine Balls	.09½	@	.11¼
Box Twine, 2-3 ply	.11¾	@	.12¾
Jute Rope	.09	@	.10
White Hemp	.12¼	@	.12¾
Java Sisal—			
No. 1 Basis	.10	@	—
No. 2 Basis	.09	@	—
New Zealand Sisal	.10	@	—
Sisal Lath Yarn—			
No. 1	.12	@	.14
No. 2	.10	@	.12
Manila Twine	.23	@	.28

CHICAGO

Paper
(F. o. b. Mill)

Kag Bond	.30	@	.53¼
Water Marked Sulphite Bond	.09	@	.12
Sulphite Bond	.04	@	.11
Superfine Writing	.18	@	.24
No. 1 Fine Writing	.14	@	.18
No. 2 Fine Writing	.12	@	.14
No. 3 Fine Writing	.07	@	.18
No. 1 M. F. Book	.06½	@	.07½
No. 2 M. F. Book	.05¼	@	.06¼
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07½	@	.12
Coated Label	.07½	@	.10
No. 1 Manila	.04¼	@	.05¾
No. 1 Fibre	.04¾	@	.05¼
No. 2 Manila	.04½	@	.04¾
Butcher's Manila	.03¼	@	.03¾
No. 1 Kraft	3.50	@	4.50
Southern Kraft	2.62½	@	—
No. 2 Kraft	2.62½	@	—
Wood Tag Boards	.04¼	@	.06¾
Sulphite Screenings	.03	@	.03½
Manila Tissue	.07	@	.07¼
White Tissue	.07¼	@	.07½
(Delivered Central Territory)			
News, per ton—			
Rolls, contract	45.00	@	—
Sheets	50.00	@	—
Boards, per ton—			
Plain Chip	27.50	@	—
Solid News	30.00	@	—
Manila Lined Chip	37.50	@	—
Patent coated	47.50	@	—
Container Lined—			
85 Test	50.00	@	55.00
100 Test	55.00	@	60.00

Old Papers
(F. o. b. Chicago)

Shavings—			
No. 1 White Envelope cuttings	1.50	@	1.55
No. 1 Hard White	1.40	@	1.45
No. 1 Soft White	1.00	@	1.10
Ledger & Writings	.55	@	.60
Solid Books	.45	@	.50
Blanks	1.00	@	1.05
Krafts	.70	@	.80
New Kraft Cuts	1.15	@	1.25
Manila Env. Cuts	1.25	@	1.30
Ex. No 1 Manila	.90	@	1.00
Print Manila	.30	@	.40
Overissue News	.45	@	.50
Old Newspapers—			
No. 1	.45	@	.50
Mixed Papers—			
No. 1	.25	@	.30
Roofing Stocks—			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper
(F. o. b. Mill)

Bonds	.04	@	.40
Ledgers	.06	@	.40
Writings—			
Superfine	.10	@	.18
Extra Fine	.15	@	.26
Fine	.15	@	.26
Fine, No. 2	.10	@	.25
Fine No. 3	.05½	@	.18
Book, M. F.	.04¾	@	.07
Book, S. S. & C.	.05	@	.07½
Book, Coated	.06	@	.16
Coated Lithograph	.06	@	.11
Label	.07	@	.11
No. 1 Jute Manila	.06	@	.09
Manila Sul., No. 1	.03	@	.05
Manila No. 2	.03	@	.04
No. 1 Kraft	.05¼	@	.06
No. 2 Kraft	.03¼	@	.04¼
Southern Kraft No. 1	—	@	.03¾
Southern Kraft No. 2	—	@	.02¾
Common Bogus	.03	@	.04
(Delivered Philadelphia)			
News Print Rolls	46.00	@	—
Straw Board	32.00	@	—
News Board	30.00	@	—
Chip Board	30.00	@	—
Wood Pulp Board	70.00	@	80.00
Binder Boards—			
No. 1, per ton	73.00	@	75.00
No. 2, per ton	62.00	@	65.00
Carload lots	60.00	@	65.00
Tarred Felts—			
Regular	52.25	@	54.25
Slaters (per roll)	.84	@	.94
Best Tarred, 1-ply (per roll)	1.95	@	2.10
Best Tarred, 2-ply (per roll)	1 50	@	1.60
Best Tarred, 3-ply	2.00	@	2.25

Domestic Rags (New)
(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1	.03½	@	.04
New White, No. 2	.02½	@	.04
Light Silesias	.02½	@	.03
Silesias, No. 1	.03	@	.03½
Black Silesias, soft	.02½	@	.03
New Unbleached	.05	@	.05½
Washable, No. 1	.01	@	.01½
Blue Overall	.03	@	.03½
Cottons—According to grades—			
Washable, No. 2	.01	@	.02
New Blue	.01	@	.02
Fancy	.01½	@	—
New Black Soft	.02	@	.03
New Light Seconds	.01	@	.02
New Dark Seconds	1.50	@	1.75
Khaki Cuttings—			
No. 1 O.D.	.03	@	.03½
No. 2 Mixed	.02½	@	.03
Corduroy	.02	@	.02½
New Canvas	.03½	@	.04
New Black Mixed	.02½	@	.03

Domestic Rags (Old)

White No. 1—			
Repacked	2.50	@	3.00
Miscellaneous	1.75	@	2.00
M. G.	3.00	@	3.50
Thirds and Blues—			
Miscellaneous	1.00	@	1.25
Repacked	1.50	@	1.75
Black Stockings (Export)	2.00	@	3.50
Roofing Stock—			
Foreign No. 1	.50	@	.75
Repacked	.70	@	.80

Bagging
(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.25	@	1.50
Domestic	1.50	@	—
Manila Rope	2.00	@	2.25
Sisal Rope	1.25	@	1.50
Mixed Rope	1.00	@	1.10
Scrap Burlaps—			
No. 1	1.25	@	1.50
No. 2	.80	@	1.00
Wool Tares, heavy	2.75	@	—
Mixed Strings	1.15	@	1.25
No. 1 New Light Burlap	2.25	@	2.50
New Burlap Cuttings	2.00	@	2.25

Old Papers
(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	1.60	@	1.70
No. 2 Hard White	1.50	@	1.60
No. 1 Soft White	1.40	@	1.45
No. 2 Soft White	1.10	@	1.15
No. 1 Mixed	.50	@	.60
No. 2 Mixed	.40	@	.50
Solid Ledger Stock	1.00	@	1.10
Writing Paper	.65	@	.70
No. 1 Books, heavy	.55	@	—
No. 2 Books, light	.40	@	—
No. 1 New Manila	1.10	@	1.15
No. 1 Old Manila	.60	@	.65
Print Manila	.40	@	.45
Container Manila	.35	@	.40
Old Kraft	.85	@	.90
Common Paper	.17½	@	.25
No. 1 Mixed Paper	.20	@	.30
Straw Board, Chip	.20	@	.30
Binders Board Chip	.20	@	.30
Corrugated Board	.35	@	.40
Overissue News	.45	@	.50
Old Newspaper	.30	@	.35

BOSTON

Paper
(F. o. b. Mill)

Ledgers—			
Sulphite	.06	@	.12½
Rag Content	.12	@	.30
All Rag	.36	@	.52½
Bonds—			
Sulphite	.05½	@	.11½
Rag Content	.12	@	.30
All Rag	.36	@	.65
Writings	.06½	@	.20
Superfines	.11	@	.31
Book, Super	.06	@	.09
Book, M. F.	.05½	@	.08½
Book, Coated	.08½	@	.18
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06¾
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	—	@	.04¾
No. 2 Kraft	—	@	.02½
(F. o. b. Boston)			
Southern Kraft	.02¾	@	—
(F. o. b. destination in carload lots, f. o. b. mill in less than carload lots.)			
Common Bogus	.02	@	.02¼
(Delivered New England points)			
News Print, rolls	44.50	@	—
Straw Board, rolls	.009	—	@35.00
Straw Board in Sheets, basis 35s to 70s	—	@40.00	
Filled News Board	—	@30.00	
Chip Board	27.50	@	—
Chip Board (Creasing)	27.50	@30.00	
Single Manila Lined Chip	—	@37.50	
Single White, Patent Coated News Board—			
Bender	45.00	@55.00	
Wood Pulp Board	70.00	@75.00	
Binder Boards	62.00	@75.00	

Old Papers
(F. o. b. Boston)

Shavings—			
No. 1 Soft White	1.25	@	1.40
No. 1 Old Manila	.50	@	.60
No. 1 Mixed	.60	@	.70
No. 2 Mixed	.40	@	.50
Solid Ledger Books	1.20	@	1.40
Overissue Ledger Stock	1.15	@	1.30
Mixed Ledgers	.60	@	.70
No. 1 Books, heavy	.55	@	.65
No. 1 Books, light	—	@	.30
Crumpled Stitchless Book Stock	.50	@	.60
Manila Env. Cuttings	1.25	@	1.30
No. 1 Old Manila	.50	@	.60
White Blank News	.85	@	.90
No. 1 Kraft	.70	@	.80
Manila	.80	@	.90
No. 1 Mixed Papers	.12½	@	.15
Print Manila	.30	@	.40
Overissue News	.35	@	.45
Old Newspapers	.30	@	.35
Box Board, Chip	17½	@	.20
Corrugated Boxes	.25	@	.30
Screening Wrappers	.25	@	.32½

Bagging
(F. o. b. Boston)

Gunny No. 1—			
Foreign	—	@	.85
Domestic	.60	@	.70
Manila Rope—			
Foreign	—	@	1.37½
Domestic	—	@	1.60
Transmission Rope	—	@	.90
Mixed Strings	.25	@	.30
Jute Rope	—	@	.75
Jute Carpet Threads	.25	@	.30
Bleachery Burlap	1.75	@	2.00
Scrap Burlap	.50	@	.75
No. 1 Scrap Burlap	.65	@	.75
Scrap Sisal	.80	@	—
Scrap Sisal for shredding	—	@	.90
Wool Tares, heavy	.65	@	.75
New Burlap Cutting	.75	@	.90
Australian Wool Pouches	1.75	@	2.00
Heavy Baling Bagging	.90	@	1.10
Paper Mill Bagging	.30	@	.35
Bagging No. 2	.20	@	.25
No. 1 Burlap	1.75	@	2.00

Domestic Rags (New)
(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	—	@	.01¼
New White No. 1	—	@	.03½
New White No. 2	.02¼	@	.03¼
Silesias No. 1	—	@	.03
New Black Silesias	.02½	@	02¼
New Unbleached	—	@	.04½
Fancy	—	@	.02½
Washable	—	@	.01½
Cottons—According to grades—			
Blue Overalls	—	@	.03¾
New Black, soft	.04	@	.04½
Khaki Cuttings	.03	@	.03½
O. D. Khaki	.03½	@	.03¾
Corduroy	.02¾	@	.03
New Canvas	—	@	.05
B.V.D. Cuttings	.04	@	.04¼

Domestic Rags (Old)
(F. o. b. Boston)

Canvas	.04½	@	
White No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	1.50	@	1.75
White No. 2—			
Repacked	.02¼	@	02½
Miscellaneous	.02	@	.02½
Twos and Blues	.90	@	1.00
Thirds and Blues—			
Repacked	.75	@	.85
Miscellaneous	.70	@	.75
Black Stockings	2.00	@	2.25
Roofing Stock—			
No. 1	.40	@	.45
No. 2	.35	@	.40
No. 3	.25	@	.30

Foreign Rags
(F. o. b. Boston)

Dark Cottons	.50	@	.60
New No. 1 White Shirt Cuttings	3.75	@	4.00
Dutch Blues	1.25	@	1.50
New Checks & Blues	2.25	@	2.50
Old Fustians	—	@	.75
Old Linsey Garments	.55	@	.65

TORONTO

Paper
(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.09¾	@	—
No. 2 Sulphite	.07½	@	—
No. 1 Colored	.09¼	@	—
No. 2 Colored	.08¾	@	.10½
Ledgers (sulphite)			
Ledgers, No. 1	.34½	@	—
Ledgers, No. 2	.25½	@	—
Writing	.09	@	.09½
Book			
No. 1 M. F. (Carloads)	6.20	@	—
No. 3 M. F. (Carloads)	5.70	@	—
No. 4 M. F. (carloads)	4.75	@	—
No. 1 S. C. (carloads)	7.15	@	—
No. 3 S. C. (carloads)	6.20	@	—
No. 4 S. C. (carloads)	5.20	@	—
No. 1 Coated and Litho	12.50	@	—
No. 2 Coated and Litho	10.50	@	—
No. 3 Coated and Litho	10.00	@	—
Coated mated	14.00	@	—
Wrapping—			
Rag Brown	4.25	@	—
White Wrap	2.00	@	—
"B" Manila	4.75	@	—
No. 1 Manila	5.25	@	—
Fiber	5.25	@	—
Kraft, M. F.	5.75	@	—
Kraft No. 2	5.25	@	—
News, per ton—			
Rolls (contract)	45.50	@	—
Sheets	50.50	@	—

Pulp
(F. o. b. Mill)

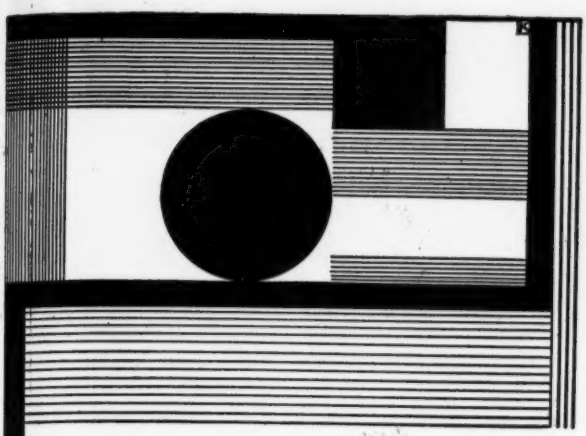
Ground Wood	18.00	@20.00	
Sulphite easy bleaching	40.00	@	—
Sulphite, news grade	38.00	@	—
Sulphite, bleached	48.00	@58.00	
Sulphate	50.00	@	—

Old Waste Paper
(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	1.80	@	—
Soft White	1.40	@	—
White Blk. News	1.25	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	.90	@	—
Light and Crumpled Book Stock	.80	@	—
Ledgers and Writings	1.00	@	—
Manilas—			
New Manila Cut	1.25	@	—
Printed Manilas	.55	@	—
Kraft	1.25	@	—
News and Scrap—			
Strictly Overissue	.50	@	—
Strictly Folded	.50	@	—
No. 1 Mixed Paper	.40	@	—

Domestic Rags
(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	09½	@	.10
Fancy Shirt Cuttings	.06	@	.06¼



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PAPER TRADE JOURNAL

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SIXTY-FIRST YEAR

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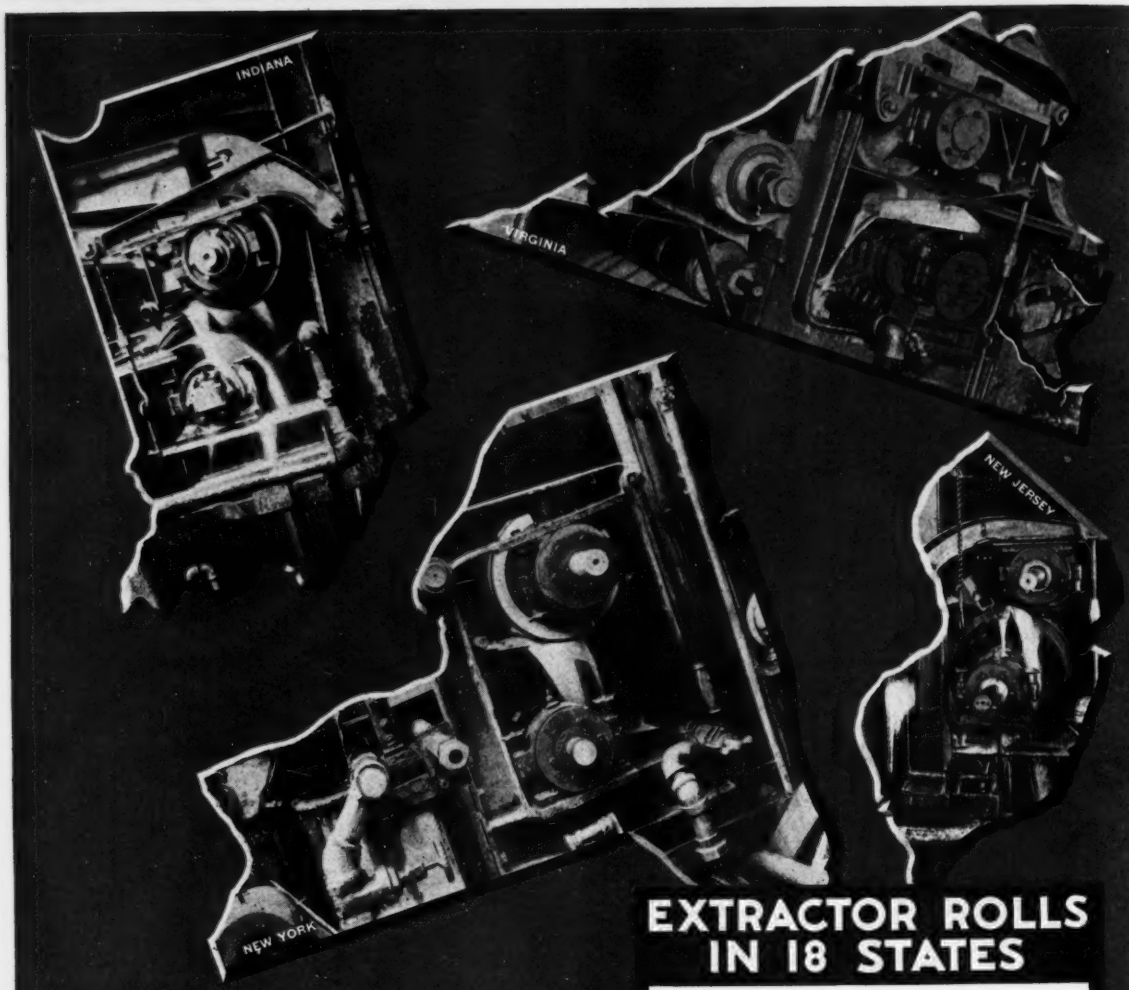
DOWNINGTOWN



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